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ΑΤΤΣΝΤΙΣ

Checkmate

Geert Folkertsma
An Interview

Breakthroughs
In Technology

ASTATINE

Colophon

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If you want to contribute to the next ATtentie, you can send in articles via email: attencie@astatine.utwente.nl
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Editorial

Hello, hello everybody!

We are back again! It has been a little while since the last edition, but at least Covid is gone. For the first edition in a while, we present some articles that have been in the works for more than a year, and some new ones to keep the reading experience fresh. We apologize for some of the older articles being... less than relevant, but you will be happy know that the next edition (with actual news) is not far around the corner.

As always, we have some funny, strange and informative stories to tell, such as a chess article that finally lets you understand Queen's Gambit, a couple of interviews with AT teachers and a more scientific story on the biggest technologies of the past 5 years (or, well, counting from 2020).

All in all, an edition of things old and new. Enjoy this long-awaited edition, while I return to thinking of article ideas as a form of procrastination. Maybe something on chess: apparently you get better at the game by writing about it. I was getting destroyed at it during our meetings...
That's enough out of me.

Have a wonderful day,
Annelies Klaassen
The (new) Editor in Chief

From the Staff

Bram Schouwstra

It is a privilege for me starting my function as AT program coordinator. Starting a new job within the COVID-19 situation is a challenge in getting acquainted with colleagues, students, processes and procedures but I am truly thankful for the support I receive from colleagues. I believe that my experience in Higher Education will allow me to fulfil my role at the UT and contribute to the UT-AT's commitment in the continuous improvement of our core business.

I was born and raised in South-Africa and moved to the Netherlands in 2020. Both my parents were born in the Netherlands and I enjoyed a Dutch upbringing. I started my career as a teacher at a technical high school where I taught, amongst other subjects, civil engineering, wood work and motor mechanics. After a few years, I qualified myself in special education and for many years our family (my wife and 2 daughters) lived on a school premises for learners with special education needs. While teaching I furthered my studies in Education Law and Management. In 2005 I was appointed as a lecturer at the North-West University (NWU), Potchefstroom at the Unit for Open distance Learning. The NWU is still the 2nd largest provider of distance education in South-Africa. Alongside lecturing, I started to manage distance education projects for the NWU. I eventually moved from being a lecturer to full time project manager. Since 2018 I acted as Chief Director of the NWU's Student Academic Life Cycle Administration for 60000+ students. As this cycle includes administration from application to graduation, it links closely to my tasks as AT Program coordinator. A student's academic administration cycle stands on two pillars namely the academia and the administration and I see my task in supporting these two pillars in such a way that our vision of being "the ultimate people-first university of technology" is reflected and enhanced. I invite students and staff to engage with me whenever you encounter a challenge related to the AT programme and when you have suggestions for improvement of practices. Looking forward to meeting you all. Keep safe.

From the 17th Board

Mark Schleidt

Yes, you see them sitting around in the boardroom when you are getting one of those tasty toasties or bapao's from the ass when you need a break from all that exhausting studying. You can see them sit behind their desks slamming on their keyboards. Did you ever wonder what they actually do during the day? Let me, the commissioner of external affairs, take you in such a beautiful day.

I start by opening the members room (when it is my turn at least), very tired because it is so early. Ready for the day after the big fight with my alarm clock that morning. When opening I make sure that there is fresh coffee for all the early birds coming in. I'll clean the dishes as well as the members room. Always nice to be able to go through the process of waking up with the smell of fresh coffee, plus you know... maybe a few hundred sips.

After this I usually start fulfilling my function as an extern. I open my mail and start responding to all the companies I am in contact with or I start to look for new collaborations. Making sure that the members of Astatine will have enough career orientation by informing them about awesome companies to let them know what they can do after their study. To do this I often organize Lunch lectures, workshops and excursions together with those companies or simply promote them to you.

Then we have our general board tasks to do, we make sure all committees run smoothly and be there for them to ask their questions. We as board help people with their problems and most importantly we try to keep Astatine as happy, cozy, fun and enthusiastic as possible (ergo we try to have enough toasties).

Nearing the end of the day I often start on vibing and chilling with my fellow board and some members. I try to achieve important missions such as unlocking characters on smash and beating my chairman at mario kart, which I always do (except for when he is cheating). After this it is time for a drink at a CoBo or other event with the boards of other associations. It is always relaxing to start brassing and to get some free beer after a hard day of work (and playing on the switch). After such a drink my day usually ends and I can happily (or brak) start the next day.

Technology Breakthroughs of the past 5 years (in 2020)

Ruben van Asselt

2016

Tesla Autopilot – This was the first instance where the electric-vehicle maker had sent a software update that could give autonomous driving a real chance.

Robot Teacher – In May 2016, Google presented a report of 14 robots that were linked together with a convolutional neural network. This network allowed the robots to teach themselves. Even though the robots were not told any effective method beforehand, but only rewarded for picking up an item, the robots quickly adapted and learned from each other's failures and successes.

Reusable Rockets – Since 2016 the research of reusable rockets started to become a reality. At the moment we see SpaceX testing the reusable rockets. However, since 2016 the era of spaceflight started where rockets were developed which are able to make an upright landing and then be refuelled for another trip.

Speech recognition – In December 2016, the Chinese leading Internet company introduced a new speech technology which, as we now know was introduced to all devices as Google Assistant. It originally debuted in 2016, however was deployed to all Android devices in the software kit in 2017.

Autopilot – The progress in the autopilot of vehicles from Tesla has improved. In November 2017 Tesla has showcased a truck-trailer combination that was capable of autonomous driving.

Paralysis reversal – In 2017, scientists have had a major breakthrough in reversing paralysis. By means of a brain implant, they were able to restore the ability of movement of people who were affected by spinal cord injuries. A total of 4 clinical trials were presented in the study that was posted in 2018, where all trial results were successful. All patients showed evidence of the effectiveness of the trial and showed that the trials were safe to implement.

Quantum Computing – From 2017 the research into quantum computing conducted by research groups such as Google and Intel has started to make big advancements. We will find that there will be even more improvements, but these advancements show that practical quantum computers are within reach.

All-round cameras – Well not all-round, but from 2017 on cameras that capture spherical images were available to the public at low prices. This meant that the era of 360-degree video capture has started.

2017

2018

3D-printing - 3D printing was available for a little while, however in 2018 the major breakthrough in printing was that 3D printing of metal objects became available in a quick and cheap way for all manufacturing companies.

Creating life – In 2018 the University of Cambridge created life without the use of original methods such as eggs and sperm. They grew multiple embryos of mice from merely the stem cells. This does not mean that the embryos could have grown into mice but does show that mammals could have been born otherwise.

AI-improvements – In 2018 research has started to establish better working artificial intelligence. The problem was that AI was not capable of creating realistic images without imagination. Therefore a program has been set up with two AI. One would create images of real-life without any pre-knowledge. The other AI would get the generated pictures and real pictures and would identify which are real and which are fake. This resulted into more and more realistic looking pictures, soon giving the technique known as deepfake.

Pocket-translator – In 2018 Google launched a device that looks like a set of headphones. However, it makes use of the translating technology they had developed many years ago and was used in a way that the device would actively translate a conversation between 2 people.

2018

2019

Pill-Probe – Researchers created a probe that looks like a pill. This pill makes it possible to capture images of the gut without the use of anaesthesia. This technology makes it possible to study gut diseases which occur millions of times to children in third world countries.

Cancer-treatment – In 2019, researchers have started human testing of a new treatment against cancer. It uses the natural defences of the body which selectively destroy only the tumor cells. It even shows that there is a possibility that the vaccine can spot stray cancer cells after initial treatment.

Cattle-free meat – In 2019 the first lab-grown hamburger was made. This burger was created with the use of muscle tissue from animals. They were put into bioreactors and grown into a full-sized burger. All they have to resolve is the taste of the burger as that was the issue for lab-grown produce.

Carbon dioxide catcher – This is not something that is immediately available. But the concerning rate of carbon dioxide emissions shows that maybe the only solution to remove carbon dioxide is to pick it from the atmosphere. Therefore research believes in 5-10 years there will be a solid method for capturing carbon dioxide... Next issue – what to do with this captured carbon dioxide.

Sewer free – A toilet has been created which can treat waste without the need for sewers. This toilet filters out pollutants with a membrane that has pores smaller than bacteria and viruses. Or it can heat up the remaining waste to produce a carbon-rich material that can fertilize soil. This might be a great solution for 2.3 billion people that suffer from bad/no sanitation.

2020

Personalized medicine – Scientists are capable of creating a drug that can be tailored to a person's genes. When you are suffering from a unique genetic mutation, they are capable of adjusting the drug such that it specifically tackles that mutation. The drug is programmed in a digital fashion to compensate or correct for inherited diseases, letter for DNA letter.

Anti-aging - A new drug has started human testing which is capable of slowing or reversing the fundamental process of aging. This does not let you live longer (yet). But does give the possibility of slowing down diseases such as cancer or dementia, which could potentially be a method of treatment.

Satellites – With all testing of launching orbiting structures, we are now capable of bringing larger and larger satellites into orbit. SpaceX believes the total number of satellites can be quintupled in the next 5-10 years. This will either give the best connection anywhere or litter Earth's orbit with satellite junk.

Tiny AI – Our systems such as mobile phones and computers previously had to connect to the cloud to make use of AI-driven features. However, a new breakthrough in AI has created a way to run AI algorithms on devices as small as our mobile phone in an effective way. We find this technology in voice, face and finger recognition.

Climate change – A program has been created by the World Weather Attribution, that can accurately estimate the effect of climate change on extreme weather. They compared our world with Earth where there would not have been climate change. It estimated that currently the storms are 2.6 times more likely to occur and are 28% more intense.

Sneak Peek

Julia Vendrig

Standing in front of a classroom whilst driving a Segway and wearing a giant coordinate system on the head is nothing out of the ordinary for assistant professor Geert Folkertsma. You might wonder, who is he, and how did he get here?

A quick Google search shows that Astatine's 4th secretary was born in Westenholte, a neighbourhood in Zwolle, during the spring of 1988. He went to Meander College, where he followed a broad range of science courses as well as Drama and Economy. After successfully finishing secondary school, Geert decided to study Advanced Technology here at the University of Twente. In 2010, he started his master, specialising in mechatronics. He graduated both his bachelor and his master, cum laude! His journey took him to Massachusetts Institute of Technology (MIT) in Boston. Back in the Netherlands, Geert applied for his PhD in biomimetic robots which he attained in 2017. Whilst working on his PhD, Geert also worked at Clear Flight Solutions and taught various BSc and MSc level courses at the UT. Nowadays, Geert works as a mechatronic system engineer at Demcon and still manages to make time for teaching one day a week.

For this edition, I have had the pleasure of talking with Geert, one of ATtentie's former editorial staff members. This article will go beyond the shallow Google search and inform you a little more about his life.

Encouraged by his parents, Geert got into music. At eight years old, he got inspired by a fanfare orchestra walking down the street on Saint Martin's Day. With a lantern in his hand, he followed them. Walking at the front, close to the end of the orchestra, something mightily interesting caught his eye and he immediately said: 'I want to do that!'. Being too small to play the sousaphone, Geert got the best next thing, a euphonium, an instrument he still plays till this very day. Thereby, Auto-Tune will not be needed when listening to his voice. In secondary school, he chose music as an elective. He played the trombone in a band and sang in the school's classical choir. When he came to Twente, he joined the Drienerloos Vocaal Ensemble, with whom he sang for some time. If you have not watched the film "Pitch Perfect" you might not have heard of a cappella before, yet Geert didn't need a comedy film to know of this awesome singing style. Thanks to the connections he had made within the choir, he was able to join an a cappella group. He stopped singing with the choir and started singing with the vocal group Drienerlalala, which he held on to for several years.

Geert's music taste has always been very broad. He has been to a couple of performances by the metal bands Nightwish and After Forever, but he enjoys classical music and choir singing above anything. Even though he does not believe in a God anymore, he still goes to church every now and then. Sometimes for the music, to get that great feeling of the whole church singing, the whole ambience. *'I am not religious anymore...'*, he quickly

Gerrit Adriaan Folkertsma

Birthday:
13th of June 1988

Favourite book:
Eragon by C. Paolini

Best song:
Canto Ostinato
by Simeon ten Holt

Favourite film:
V for vendetta

Favourite beverage:
Hot Cocoa & Whisky

Dream:
Sail across
the Atlantic ocean

threw that in at the end of what I thought would be a simple music-related question. Not wanting to pry too much, I move on. A bit further into the interview, one of my questions unintentionally steers back to the topic, Christianity. He opens up and shares a rather difficult part of his life.

Being raised Protestants, by going to church, he believed everything his parents, the school or church told him. *'It was quite difficult, to unbelieve that, to stop believing those things.'* After he had stopped going to church, he'd still tend to think *'What if God...'*, because that was what he had been told to do. It took a long time for him to get past that point, which is understandable. In a way, he had to change his mindset completely. Seeing one of Louis Theroux's documentaries regarding the Westboro Baptist Church helped him understand what he had felt during this transition. *'When I was watching that, suddenly I thought, wow, that's what it felt like for me for like ten years or so.'* In the documentary, some people wanted to leave the church and it was tremendously difficult for them. Every day, they'd feel like big sinners even though they didn't want to believe anymore. Geert felt somewhat similar. Not that the community Geert had been a part of, was in any way similar to a cult. *'Because the church I went to was, I mean, it was really nice. There were some good progressive people. It wasn't dogmatic at all, it was actually a nice experience.'*, he says with a slight smile. Despite the fact that his parents are adherents of Christianity, they were supportive. *'They are really open-minded. So, they were fine.'* Laughingly, Geert adds: *'I haven't been abandoned or so.'*, knowing that that was what I was aiming for.

Besides music courses in school, Geert has participated in two National and International Chemistry Olympiads where he met his wife Laura. When asked if he has any more hidden talents we should know about or a random fact he'd like to share, he slightly shrugs his shoulders and humbly says *'I am just really smart. Or how do you say that? Well, it's easy for me to do these kinds of things, so that's not really special. It is just dumb luck.'* Not to imply Geert has never worked hard for anything. He did work hard for his music, rehearsing every day. He even auditioned for the Conservatory (academy of

'It's just dumb luck.'

‘...By doing things that I thought might be fun, that I thought I might enjoy. And then the opportunities came along the way.’

music). Unfortunately, it turned out he could not combine his music with AT. Later on, many hours were spent on his PhD research. Nevertheless, I believe his aforementioned statement tells you all you need to know about the amount of mental RAM and brainpower Geert possesses.

Although really smart, he did struggle a little in secondary school. As a teenager, you don’t want to stand out. You’d prefer some things to go unnoticed, like the fact that learning comes easy to you. Especially, when it comes to subjects others find rather hard, such as Mathematics and Physics. Being “too clever” has held him back in certain ways. He made sure to stick to what he knew he could do and never to stray onto an unfamiliar path, a strategy that has contributed to today’s success. However, he has never taken a risk and tried something he could potentially meet with disaster. So, might it ever come along the way, how will he cope with failure if he never learned how to fail?

I look at one of my scribbled questions and wonder if I should throw it overboard. No failure, merely doing what you excel in, does this mean Geert has never made a mistake in his career? Maybe the word “mistake” is too harsh, but there is one decision he would probably change for the better. Geert has had a wonderful time working at Clear Flight Solutions, a company that makes Robirds, as he mentioned: *‘It was fun.’*. He has learned a lot there: how certain things work, how to work with the Drone Bird engineers and how to think more alike. Nonetheless, after two years he realised this was not the place for him. Geert will always want to keep learning, to keep developing himself, and Clear Flight Solutions was just too small for that. He had become an expert on everything related to electronics, software and system design, there were no colleagues who could teach him new in-depth information about their fields, which turned out to be an influential factor for Geert. *‘If you want to discuss [something] about the dynamics of a system or about electronics or about some software algorithm, then it is important that they understand what you are doing. I found out that for me it is important that I work with people [...] who know that and maybe know even better than I do so I can learn from them.’* All in all, there remained no challenge. Geert had stood still for a year.

The main reason he had initially started working at Clear Flight Solutions and got into this field was because of a stranger who was working on a robotic bird for his graduation project. Geert thought it would be a fun project, so he had decided to help out. For his bachelor’s assignment, he had worked on flight control for helicopters and at MIT he had worked on a robotic cheetah, so he knew he could be a valuable contributor and help his fellow student. The project he joined in Boston had stirred his interest and to stay within the topic Geert decided to write his PhD research about a biomimetic cheetah: combining mechanics and nature with an energy-based modelling method to try and copy the dynamics of a cheetah.

Still on the topic of MIT, I ask what he learned about himself during his time abroad. I don't know what kind of answer I had expected, but I thought the first part of his response was endearing: *'[So the most] important thing that I learned was, "okay this is going to work out." For the other thing, what I learned was what I just said, MIT is great, but all the people there are just--, they're normal people and I also just fit in there, and I like doing research with them.'* What was going to work out referred to his relationship with Laura, who conveniently went to follow an internship at Harvard while he followed his at MIT. They lived together in a small studio apartment during their time in Boston. Now they are married and raising two children. His daughter, Iris, made an appearance and adorably interrupted our conversation. Just for a brief moment though, since the unknown person on the screen (me) started talking to her. I guess that could be experienced as rather scary? I wonder how he managed to finish his PhD in the same time period as getting married, having children, teaching and working at Clear Flight Solutions. His secret? Keeping that work-life balance. Still, it took a lot of effort and willpower. Not to mention, the fact that Geert and Laura were in it together. *'We were doing our PhD at the same time, so knew exactly what we were going through and how we could support each other.'* Geert considers this, finishing his PhD, his greatest achievement so far.

'To enjoy yourself.' According to Geert, this is the best piece of advice he has ever received. *'I can't point this to anyone in particular. You see it in various messages with various people in various ways, but to try to enjoy what you're doing or try doing what you enjoy and have fun at doing that. And also, every now and then, step back and realise how lucky you are, how good things are.'* This is clearly reflected in the decisions he has made throughout the years, who he is as a person, hence the answer to most of my questions.

Why did you decide to take a board year? *'Because I thought it would be fun.'* And I suppose it was, since a reoccurring notion was: *'And really it was just great fun to do together. So, if you can get a group of people together who can get along, who can become friends or at least good teammates, then you can have a really good time and do some good stuff.'*

How did your earlier (career) choices lead you to where you are today? *'I think I just always tried to do what I thought would be fun to do.'*

Regarding his grant for MIT: *'...but I thought "hey that's fun, let's try and do that!"'*

About his time at the university: *'... I guess it's fun.'*

The Robird research: *'It sounds like fun what you have, I'll help you!'*

Working at Clear Flight solutions: *'It was fun.'*

Teaching wherever, whenever: *'But what I enjoy a lot is giving presentations and talking about things that I like. That's why I'm still teaching, I'm still working at UT, one day a week, and that's really only because I like teaching.'*

'So that's something I really like, this outreach, of telling, no matter who - students who have to learn it for their exams, fellow engineers at KIVI or fellow sailors - and I think "hey, there is something I know that could be interesting to you," then I really like sharing that with them.'

'I'm hoping that next year, once I have those videos, even if it's still online, I can spend more time on things that are actually fun and that is talking to students, actually helping them out, teaching them something.'

The evidence is undeniable, in this case, joy is the key to everything. It is what drove him and what got him thriving in life. At the beginning of this article I mentioned a general wonderment, how did he get here? By having fun, due to opportunities that had presented themselves along the way and the people Geert had surrounded himself with, including but not limited to teachers who have challenged him academically. That is what has brought him this far. Therefore, it might not come as a surprise when this is partially incorporated into his own advice. To conclude this article, I've asked one last question: What advice would you give your younger self and the readers today?

'To keep developing yourself, keep learning. And what I just said, try to do things that you think you will enjoy. If it turns out you don't like it, you do something else. Try to have [fun doing] it. But, professionally, I would say keep developing yourself. Take courses and not just engineering courses but also, you know, humanity, like the well-being thing. Because it is fun to learn. It is fun to learn new things. At least, I really like learning. So, if you like learning, then you should just keep learning and don't stop there after you graduate.'

Note: he is referring to an online course called "The Science of Well-Being" taught by a Yale psychology professor.

'It sounds like fun what you have, I'll help you!'

Geert (on the chair) and his former colleague (on the Segway) teaching students about system dynamics.

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Combatting climate change with a new energy mix

We all know it's time to stop burning oil, but that's easier said than done, right? Switching to alternative energy sources will require a complete cultural reset. To achieve this successfully, we must have complete confidence in our alternative options – and nuclear is the most reliable answer we've got.

Climate change is our biggest reminder that fossil fuels must become a thing of the past. With scenes of natural devastation currently playing out around the world, paired with an ongoing war waged by one of the world's biggest oil providers, it seems no surprise that we find ourselves paying a high price for energy right now.

Laure Claquin, CFO and Sustainability Officer for ETC, calls for real change in these times of adversity. "*Ultimately, our consumption habits need to change,*" she says. "*As well as being conscious of the current cost of energy, humankind need to address the bigger picture. Our treatment of resources, land usage, water management, waste consumption – essentially our total impact on the planet – is all dictated by our energy consumption.*"

But if fossil fuels are no longer an option, what is our alternative? "*If we want to maintain our lifestyle, we need access to a more sustainable energy source,*" says Claquin. "*Renewables are a good route, but they need the support of a more consistent, reliable energy – that energy is nuclear. It is safer and more affordable than ever before, and nuclear enrichment is one of the most resourceful methods of creating energy, producing little to no emissions.*"

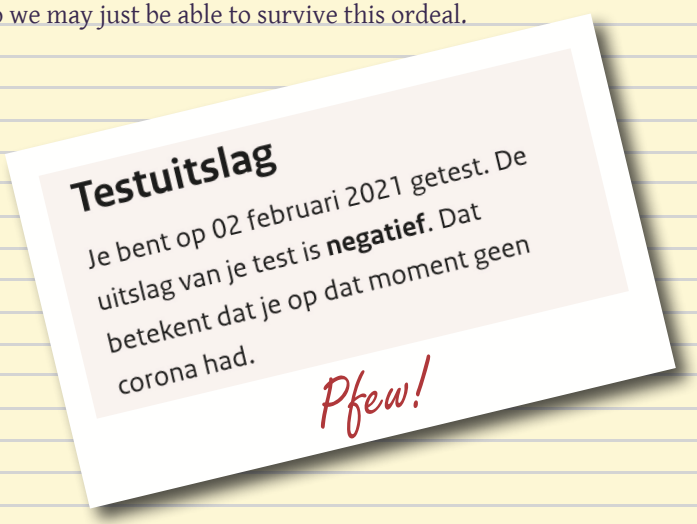
Though, this new energy mix cannot do all the heavy lifting, Claquin warns. "*Yes, nuclear is the best answer we have today, but it's important to recognise that we can't just expect technology to keep saving the day,*" she continues. "*We need to realise the implications of our infinitely growing consumption. The current energy crisis gives us an opportunity to look at the bigger picture. We must use this time of reflection to make significant behavioural, habitual changes. Now is the time to act.*"

Sander's Quarantine Diary

Dear diary. You remember a year ago when I told you how close I had gotten to Corona already? Going to Lombardy the same time Covid decided to show up there? My brother went to celebrate Carnaval in Breda? My parents living in the Randstad, the second Corona hotspot in the Netherlands? Me actually living in Overijssel, the other hotspot at some time? I missed the first quarantine my roommates had to do by the sheer luck of not being there. But it finally caught up to me at our Christmas dinner. The guest a roommate had over previously was tested positively. And so was he. And after dining through the entire curfew clock (I'm not exaggerating, we finished eating around 4.45), we had been in close contact for quite a while. So, it was time to self-quarantine. Here are my adventures for the week I was confined to 14 m² and whatever the area of our living room is.

Day 1

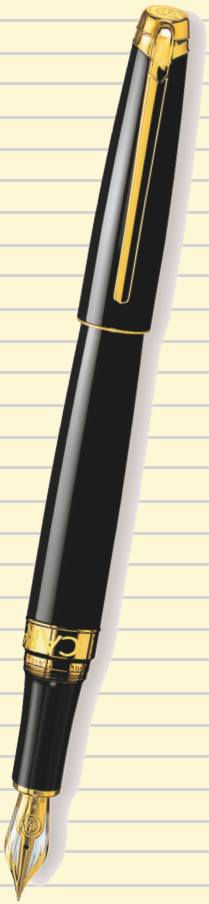
Ran into my roommate while getting breakfast. Called upon the power of ~~Christ~~ 1.5 meters to compel him, or I tried to at least. About two hours later he notified us that his test was positive. *Hooray*. Survival mode kicked, for as far as I have one. Quickly scheduled a test myself, had planned it at 14.15 the same day. Also, I have about zero groceries available. Praying to our lord & saviour Albert Heijn has proven useful, as next day delivery is still available. Some other blessed person has done groceries for tonight, so we may just be able to survive this ordeal.



February 2nd

Day 2

I have been trying to stay clear of my roommates, as far as that is possible. They have all been cheering as their tests returned negative before it was even lunchtime. Me? Well I have been waiting still, quickly toasting some cheese sandwiches for lunch. It took six hours after the others, but finally I have gotten back my results. As negative as my outlook on life. Hooray.
Also, Albert Heijn just dumped about €200 of groceries. Our survival package for the upcoming week. Let's pray to ~~god~~ Albert Heijn that it's enough.



Day 3

Realised that the moment I started going for runs, this happened. It has to be a sign. Mainly that running sucks, or at least that it does so for me. I'm totally not lazy or something. Another thing that got nipped in the bud is my religious awakening. Whereas for the past few days I had been faithfully thanking our big blue lord, we realised that, through no fault of our own, we were out of garbage bags. Now Lidl is the only god for me.
I may also be developing a minor god complex myself. The contagious roommate ran out of toilet paper, however in an unmatched bound of clairvoyance I ordered a pack for his side of our house. Without anything being in it for me. May they worship me and my ability to think ahead.

Day 4

The munchies have hit even harder than they did on day 3. If this curve keeps up, by the time I am allowed to leave my room again I won't even physically be able to. Too bad I'm still hungry. Also, there have been a lot of messages and forecasts for snow. If I have to sit inside through that as well, I swear to ~~god~~ me I'll go insane, literally.

Day 5

Remember the snow forecasts? Well, the test locations will most probably close tomorrow due to it. I have a test scheduled that day. If I cannot do that test, I will not be allowed out of quarantine until my positive roommate has not exhibited any symptoms in a day. Yeah. I'd really fucking like to go out in the snow. My appointment is now in 15 minutes.

Going out through that cold weather meant I deserved some hot cocoa. I also took some hot cocoa to calm my nerves. I'll probably have more hot cocoa in the upcoming days as it is a food fit for gods.

Speaking of gods, my god complex has been enforced as well. I ordered a package with split pea soup ingredients. Perfect for the cold and snowy weather. My clairvoyant abilities are clearly being enhanced by this quarantine. Soon I will have ascended this mortal plane and leave behind this prison made out of my own room.

Day 6

Woke up to a world white with snow. I cannot help but at least go outside onto our square to annoy some others with awfully thrown snowballs. My test results even came in quite early and were negative, so I got to go outside legally! I decided to ignore all my negative feelings of the past time, take out my camera for the first time in months and just get lost in the woods. Birds were actively enjoying the snow (or so it seemed, maybe they were just trying to stay warm). I also saw multiple deer prancing through the snow. I don't think the last day of quarantine could have been better.

Quotes

"Always leave room for improvement"

- Stephan Bosman

2.0

6.5

"I myself am also unstable, don't worry."

- Antonio Franchi

"The learning goal of 'instrumentation' is to realize why you are not studying electrical engineering."

- Herbert Wormmeester

8.5

2.8

"The answer is always yes, except when it's no...."

- Ben Vigos

"WOUTER, THIS IS NOT A TOILET"

- Jenny

8.3

How to become better at chess

Yannik Wotte

Say you've watched The Queen's Gambit and, like I, already had your first few devastating losses in chess games. You know how pieces move, you heard of castling and "en passant", and most importantly: you know that the other color will murder your king. If you don't, [1] is a good summary. That's where we're starting off. But how do we get to a higher level the quickest?

First, let's assume anyone can become a chess prodigy: we will find out what changes about our view of the chess board as we go from a noob to a grandmaster.

The noob view is easy, you see it to the right ;) There's the pattern of the board, there's figures. They can do moves, and within 2 or 3 moves from this starting position everything becomes a haze where even planning a single move ahead is mental work, because there are just so many options. And how did the horse move again?

Once we know the move-set of the knight by heart and avoid single step blunders (RIP Queen being sniped by a bishop from across the board), tactics are the next big step. As you become better at chess, you don't necessarily have to think more than you do at the noob level – it's just that you use your brain more effectively. The first thing you build intuition for is how the board develops: By practicing a few games, you are slowly becoming less blind to how the chess-board will look if you do certain moves: you have to think less to know what happens if you do certain moves. Even then, we are still largely blind about tactics. At this stage you already cooked up a few good tactics yourself, but it was always big-brain time when we had good ideas and we definitely didn't see more than 2 or 3 nice ideas at a time (more than one at a time if I'm being honest with myself).

At the next level, you know more about the meat of this article: tactics. Pros don't just know the movement of the knight by heart, they also fully ignore bad tactics. It's like there is an entire set of movements that are technically allowed in chess, but grandmasters ignore them like you ignore the idea that one of your

pawns could jump across the board. It is little effort to them to see a few steps ahead and they have an idea if a set-up is good or bad without even having to look ahead a few steps. This doesn't have to feel exhausting either, they just have a lot of intuition and ignore the obviously bad moves and tactics.

Then the real question for you and me is what the large-scale tactics are: what should we ignore, how do we build intuition? As always, the answer to building intuition is practice. But we can mention some of the rules of thumb for what is bad and what is not, and the some reasons why. We can even cover small tactics and higher level "movements". So let's go!

I'll start by giving you the three phases of the game, the tactics and movements that go into them, and general intuition for what is bad and what is good in a given situation. The entire idea is that by the end of this article, you'll have a few sneaky ideas on devastating the other side, and that I'll finally know what the Queen's Gambit opening is. There are a lot of ways to get better at chess by memorizing and putting in effort, but let's just look at the heuristics (rules of thumb) instead.

Pre-opening heuristic

The importance of pieces. In general, the order goes Pawn < Knight & Bishop < Rook < Queen. Losing two of the lower category for one of the next higher seems to be a good trade, most of the time (except for pawns, it's usually bad to trade higher pieces against them).

The Opening

Goals are:
- *develop you pieces: get the non-pawns out on the board*
- *advanced: Keep your opponent from developing* (no simple heuristics, case-by-case, often requires you to study openings)

So if you have a strong opponent, don't:
- *move too many pawns* (use them to support your important pieces, don't try to win with only pawns)
- *move a single piece more than once* (causes you to neglect development of other pieces)
- *move the queen too early* (opponent can easily chase her around and force you to make multiple moves while they are developing their important pieces)
- *try to win trades / attempt early checkmates* (unless you know your opponent is bad). The attempt often costs you valuable moves

But do:
- *control the center of the board* - makes the opponent's life harder, keeps your pieces nimble for the middle game while restricting freedom of the opponent's pieces
- *castle as early as possible:* gets rooks into the game and the king into safer position
  - castling is easy to prevent at later stages and not castling can lead to quick disasters

Other heuristics:
- *in the early stage, knights and bishops are more useful than rooks*, because rooks need free files (lines without pieces) to be threatening, but it's still nice to use the rooks

The Sicilian Defence: 1. d4 c5

The Queen's Gambit: 1. d4 d5, 2. c4

If you feel like going into the details of an opening, try the Sicilian defense or the Queen's Gambit, which are very common. But as a beginner, almost anything is fine as long as you develop pieces.

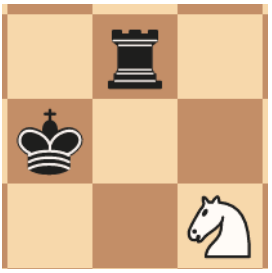
Middle game

The middle game starts after you have done your set-up, and here the chess rabbit hole really starts. The goals are simple, but the heuristics are many and there is no safe catch-all for winning. Looking at the literature really makes you realize how there are 69e+12 options for the first 5 moves, and how it gets much worse afterwards. There are entire books on the consequences of single opening scenarios. But the impossibility to know it all is the cool part about chess, and no one expects to learn it all through one ATtenTie article anyways... And now getting back on track, in the middle game you should:

- *gain material*
- *improve positions of pieces* (no trade is truly equal, someone always improves their position)
- *adapt, survive, overcome* (or fail bitterly)

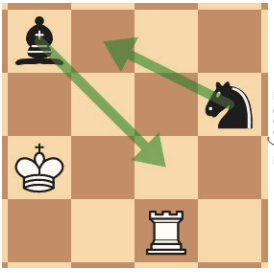
Do's (Explained in the pictures):

- *fork:* when you attack two valuable pieces at once (many rooks were lost to this)
- *decoy*: sacrifice a juicy piece and push your opponent into a bad position (Decoy 1: After losing the queen, you can immediately take the rook and regain the queen. Decoy 2: Bait the rook with your bishop, then take the rook)
- *pinning*: keeping a piece from moving because that endangers the king (the rook can't move away because that exposes the king)
- *destruction of a guard:* trade against a piece that protects another and win that piece too
- *deflection* (distracting a guard): trick the enemy into moving the guarding piece
- *double attack* (start an attack on two pieces with one move)
- *discovered check* (move one piece such that another attacks the king)
- *counterattacks* (they attack, you attack somewhere else)
- If you're behind, to *draw*: perpetual check (draw by repetition happens when the same position occurs three times)
- *Look at my horse, my horse is amazing*

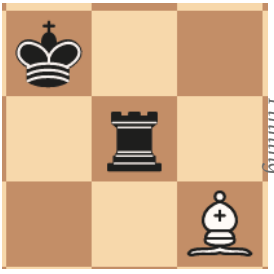


Fork

Decoy



Decoy 2

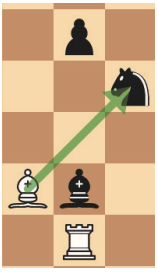


Pinning

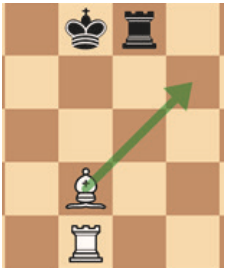
The implementation of these strongly depends on the rating you have, for example a blunt attempt at a fork won't work against really strong players.

Don't:
- *blunder away pieces* (Take your time for moves, especially when you move an important piece)
- *Give it a lick (hmm! it tastes just like raisins)*

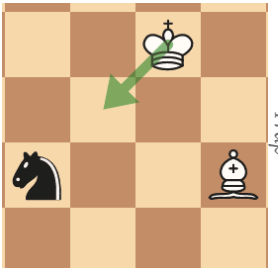
And last, some rules by which you can quickly judge who is winning in the middle game:
- *Number of active pieces* (the higher the better)
- *Protected and unprotected pieces* (Give you places to attack)
- *Who controls more space?*
  • Outposts are nice to have (a knight on a really strong square, see info below Pawn Structure)
- Pawn Structure:
  • open position: center free of pawns
  • closed position: center blocked by pawns
  • open files? (Vertical) lines free of pawns
  • passed pawns (a pawn that has no opposing pawns to the side or in front of it)
  • weak squares and strong squares (weak squares are those that can't be



Destruction of a guard



Double Attack



Trap

protected by a pawn). Really strong if you have a strong square where the opponent has a weak square, because that square will be hard to attack

- King safety
- Initiative: whose pieces dictate the other players response?
  • The strongest form of Initiative are "Mate in 1, 2, 3 or more" steps: When the opponent only has one possible response to your moves and it all leads to a checkmate

But what at keep in mind, heuristics are only guidelines for behavior and shouldn't restrict you if got reasons not to follow.

Outpost: If neither the pawn nor the knight can be attacked by a pawn, then this is a strong formation, the closer to the enemy the better

End game

You did it, you * of a *****, you really did it. You survived until only a few pieces remain, and now you have to:

- *Checkmate with various king + piece combos*
- *Escort your pawns to promotion*
- *Trick the enemy into a stalemate, if you're losing*

Don't:

- *waste moves* (it's very tempting)
- *leave all opponents pieces immobile without checkmating the king* (stalemate)

Fork

Do:

- *Create passed pawns*
- *Understand pawn vs pawn fights*
- *Sacrifice pieces to promote a pawn*
- *Exchange down to a win, if you're up a piece and able to pro*
- *Use your king*

Heuristics:

- *The square rule* (if your king and the opponent's pawn are in a square made by the distance of that pawn to your side, you can reach the pawn with your king before it turns into a queen)
- *It's absolutely impossible to win if all you have is a knight, or a bishop* (both together is fine though)

Alright then, that's it for the quick crash course in tactics! Keep in mind that all of these "rules" are there to be broken if you have a very good reason to break them. And of course if you also want to figure out why not following them is a bad idea ;)

Otherwise, it's now time to get defeated with style

Good luck!

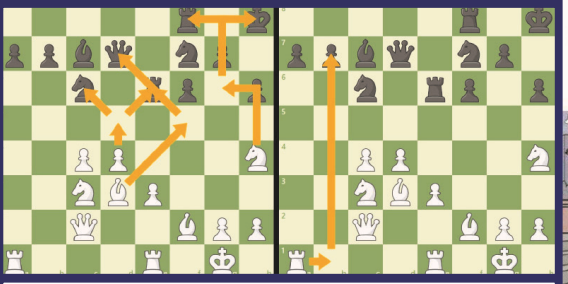
[1] *https://www.instructables.com/Playing-Chess/*

And here, because you've made it so far and we have a page to fill
- some chess memes.

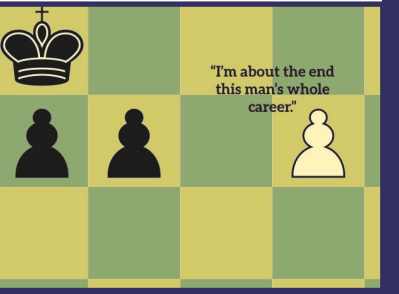
That Look when you know you are Going to Win

"I blunder a lot of pieces"

"I favor activity over material"



What they think I'm planning vs. what I'm actually planning



My honest favourite

Introducing the ACCie Committee

ACCie, June 2022

The ACCie is a relatively new committee within Astatine as it was founded at the end of the last academic year. This committee spreads awareness about social and environmental sustainability. Furthermore, they aim to bring awareness amongst Astatine's members regarding society, and they hope to help students connect to charity work. ACCie has been active since the start of this academic year, and they are currently undertaking a clothing gathering action that will start Monday, the 25th of April. Simultaneously, they are working on a student style Vegetarian Cookbook for which you can still give your input! Thereby, they have organised the collaboration between MANNA, Samen1Enschede, and Astatine to help the elderly in a possibly difficult time. The last event the ACCie has participated in was the Walk & Dance To Fight Cancer movement. They had gathered a team of motivated students to walk over 20 kilometres in and around Enschede, and they closed off this beautiful event by busting a move on the dance floor. Together, the A-Team raised 1.472,00 Euros to fund cancer research! Check out the rest of this article if you would like to know who are currently part of the ACCie, and why they chose to join this committee.

Jenny Agerbeek

Hey everyone! I'm Jenny and currently finishing up the AT bachelor's. As some might know, last year I was part of the 16th board of Astatine. During such a year, thousands of ideas came to mind, and one of them was setting up the ACCie! As you can see 'so said so done' and as I was very excited and already had quite some ideas to do with the ACCie, I decided to join the committee. The committee is relatively lowkey but we already managed to set up nice activities and hopefully many to come!

Groetjes,
Jenny

Hello, I'm Stijn and I just started my Master Sustainable Energy Technology. Last year I became a vegetarian and became more aware of what is going on with the Climate. When I got approached for a committee about awareness of the climate and society and was immediately interested. This committee seemed like a good way to inform other people about what is going on around them and keep being active in and around Astatine together with the fun people that are in this committee as well.

Stijn van de Beld

Thijs Hamstra

Treasurer

Hi, I'm Thijs and I'm in my fourth year of studying. As a long-time vegetarian, I am always interested in making the world a better place. When I heard that there was gonna be an committee that would be working on activism and environmentalism, I knew I wanted to take part. Of course, it also helped that a lot of people I knew from other committees would also be doing the committee, and that it's a nice, light way to stay active at Astatine beside my busy schedule.

Chef Promo

Hey peeps, I am Jelte, a fourth-year student who has been active at astatine for quite a while now. All other committees I have done were about organizing fun things to do, but apart from that, the ACCie is also about doing little things to help the less fortunate and make the world just a little bit better. During my years I have noticed that a lot of people are willing to live a more sustainable lifestyle, but simply do not know where to begin. I remember when I became a vegetarian I had no idea what to cook. Therefore, my favourite project of ours is making a vegetarian/vegan cookbook. It might help people make that seemingly difficult step. There are still quite some things we want to do with the committee, so I will probably stay in the committee next year.

Joe joe,
Jelte

Jelte IJsseldijk

Julia Vendrig

Board Representative

Hi there! I am Julia, a third-year student and, as you may know, the treasurer of the 17th board of S.A. Astatine. I believe it was somewhere around the start of secondary school that I began to dedicate some of my time to volunteering work. Whether this was something more fun and laid back like helping the church with their kids' musical, painting murals at school, or tapping at a festival. Or some more serious social work such as aiding the elderly with various tasks or helping those with a (mental) disability prepare a nutritious meal. And even though it can cost quite some time and energy, I have found that the kindness and stories you get in return have always been worth it. I have been trying to find my way back to my personal proverb, "Help me, help you." and the essence of the ACCie fits perfectly within this mentality. Not only on a social aspect but also in regard to raising awareness about sustainability and environmentalism. The negative effects meat consumption has on the environment caused me to switch to a vegetarian diet, which I maintained for about five years. Now, I have adopted the vegan lifestyle. Hence, I wholly support this committee as its focus and vision align with my own view of the future, and I look forward to the changes we will make.

Cheers to a better future!

Puzzle page

Annelies Klaassen

This editions puzzle is a classic word seeker! The puzzle, words and solution are all themed around a letterw... Can you guess?

Apex
Axolotl
Boxing
Climax
Coax
Convex
Exam
Exit
Flux
Foxes
Galaxy
Gearbox
Hex
Hoax
Jinx
Next
Nexus
Oxeye
Pixel
Redox
Taxi
Toxic
Tuxedo
Vixen

G	O	N	C												G	I	V	E	
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Cheerful Chef

Chocolate Muffins

Alina Von dem Bussche

There are always good reasons to celebrate – for instance Astatine's lustrum year. A great way to celebrate, or just make a bland day a bit nicer, is with muffins. So here's a simple muffin recipe that can get you started on your celebrations.

Ingredients:

- 4 Eggs
- 200g Flour
- 1 packet Baking soda
- 150g Sugar
- 1 packet vanilla sugar
- 50ml Milk
- 150ml Sunflower oil
- 2 tablespoons cocoa powder (preferably baking grade)

Optionally:

- 1-2 tablespoons jam or marmalade (slightly sour fruits work nicely)
- Chocolate chips

Steps

1. Turn on oven to preheat to 180˚C

2. Place Eggs, Flour, Baking soda, sugar, vanilla sugar, milk, oil and cocoa powder in a mixing bowl, including jam and/or chocolate chips if you please. Stir until you have a homogeneous mass of dough.

Pro tip: to get slightly more 'fluffy' muffins: separate the egg yellows and whites, mix all the other ingredients with the yellows, beat the whites separately until they are a firm white foam and then carefully add that to the other ingredients that you pre-mixed with the yellows.

3. Put your dough into muffin cups/liners on a baking tray. Pour from the mixing bowl or use spoons.

4. Let Muffins bake in the oven for about 20 mins. You can poke a sharp knife or wooden stick into the muffins to test whether they are done – if there is no dough sticking to the knife after poking into the centre of a muffin, they're good.

5. Optional: Decorate with some coloured icing, melted chocolate, and/or sugar sprinkles.

6. Enjoy!

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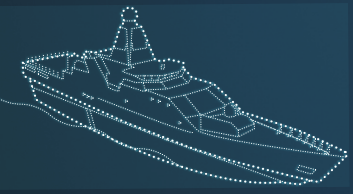

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