Work Experience

2024 – Present **Quantitative Researcher & Developer @ AGITProp**
- *Creating algorithmic trading strategies, performing statistical research*
- *Maintaining and expanding a wide range of the infrastructure*

2023 Summer **Software Developer Intern @ DRW**
- *Created a monitoring tool that interacts with 200+ employees daily and distributes the workload uniformly by alerting the right people*

2022 Summer **Quantitative Research Intern @ WorldQuant**
- *Developed a Meta Learning framework with evolutionary algorithms to mass-produce low-correlation Machine Learning trading strategies*

2021 – 2023 **Senior Group Leader @ Alphacademy**
- *Taught programming to 100+ children from novice to Olympiad level*
- *Supervised six other teachers, interviewed and trained new teachers*

Bence Hervay

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Education

2021 – 24 **University of Cambridge, Trinity College – Computer Science BA**
- *Awarded **Full Trinity International Bursary** for academic excellence – **granted to only 5 students***
- *Winning **Second Highest Scoring Dissertation** for my research on **Reinforcement Learning for 2048***

2021 – 22 **University of Szeged – Computer Science**
- *Awarded **Full Scholarship** for my research on ML for the National Research Excellence Program*

2019 – 20 **KÜRT Academy – Artificial Intelligence Technology Training**
- *Completed the course as the **youngest participant ever** to take part*

2015 – 21 **Fazekas Mihaly Grammar School – Advanced Mathematics Class**
- *Achieved **A*A*A*** equivalent final grades with a **Medallion of Excellence** for outstanding performance*

Achievements

Mathematics

- Mathematics National Olympiad
  ***1st** (2018) – Consistently **Top 15** in all years*
- Cambridge Test of Mathematics for University Admission
  ***Top 3** (2021) – Among all Computer Science applicants*
- Bolyai Academic Mathematics Championship
  ***2nd** (2017), **3rd** (2018), **2nd** (2019), **1st** (2020)*
- Medve Outdoor Mathematics Contest
  ***1st** (2018), **1st** (2019)*
- KOMAL Mathematics year-round contest
  ***1st** (2017), **2nd** (2018)*

Robotics

- FIRST Global Robotics Championship
  ***1st** (2017) – **Invited to The White House by the Presidential Family** to celebrate our victory against 150+ competing countries*
- World Robot Olympiad
  ***1st** (2018), **2nd** (2019) – Senior National Finals*
- FIRST Lego League Robotics Challenge
  ***1st** (2018) – Senior National Finals*
- Robot Programming National Championship
  ***3rd** (2017) – Award for most creative solution*

Computer Science

- International Olympiad of Metropolises
  ***2nd prize** (2019) – Qualified as one of just **two** students to represent my country*
- Cambridge Rendering Competition
  ***1st** (2022) – Among all Computer Science students*
- Project Euler (Computational Mathematics platform)
  ***Top 0.04%** globally (2022) – Solved **233** problems*
- Codeforces (Competitive Programming platform)
  ***Top 0.8%** of all users (2021)*
- MaTech National Technology Competition
  ***1st** (2019)*
- Ericsson Programming Championship
  ***2nd** (2018) – Defeating 300 university students at 16yo*

Physics

- Physics National Olympiad
  ***1st** (2020) – Consistently **Top 10** in all years*
- Bolyai Academic Natural Sciences Championship
  ***2nd** (2016), **2nd** (2017)*
- Naboj National Physics Competition
  ***1st** (2018)*
- Off-to-space! Astrophysics Contest
  ***2nd** (2021)*
- Durer National Physics Competition
  ***2nd** (2020), **3rd** (2019)*
- Vermes Miklos National Physics Competition
  ***3rd** (2017)*

Skills

- ***Proficient in C++, Python, Java (100,000+ lines in each)** and also familiar with JavaScript, OCaml, Prolog, SQL, C... Able to quickly master new languages, frameworks, libraries – generally within weeks*
- **Interdisciplinary thinking** – *Combining knowledge from diverse fields to create revolutionary solutions in any area*
- **Computer Science techniques** – *Advanced Algorithms, Low-level optimization, Machine Learning*
- **Practical scientific skills** – *Advanced Statistical Analysis, Quantitative Research, Data visualization*

Research

- **Cambridge Part II Dissertation** – ***2nd best among all 120+ undergraduates*** *by surpassing the* ***SOTA 2048 Algorithm with Reinforcement Learning*** *in a highly optimised custom simulator* ***written in C++***
- **Wigner Research Centre for Particle and Nuclear Physics** – ***Invited to the Large Hadron Collider*** *to integrate our fully functional Muon-detector built as a year-round project*
- **Time-optimal planar navigation with bounded acceleration** – *Developing the* ***SOTA Control*** *algorithm*
- **Rupert's problem** – *Created a* ***algorithmic checker in C++*** *to assist with tackling the open conjecture*
- **National Scientific Student Conference** – ***Special award*** *for my research on computer simulations performing statistical prediction on the synchronisation of attached oscillators*

Personal Projects

Crafted entirely from scratch – *utilising only foundational libraries without relying on high-level frameworks*

- **Professional algorithms** – *Playing Chess, Multiplayer Pac-Man, Nonogram, and countless other strategic games*
- **Deep Neural Network** – *Character classification (hand-crafted, graph-based, implemented backpropagation)*
- **Self-driving car** – *Algorithm controlling cars a simulated environment with multiple other competitor agents*
- **Platformer game** – *Relying on a time-travel based advanced game mechanics*
- **3D Raytracer** – *Visualising numerous 3D fractals with optical effects such as reflection and refraction*
- **Physics engine** – *Simulating movement and collision between rigid bodies and ropes*
- **Multiplayer action game** – *Online racing game with an arbitrary number of virtual worlds*
- **Rubik's cube** – *Visualising and solver for the 2x2 and 3x3 versions*
- **Some projects open-sourced on** ***GitHub***

Sport

- **Great Court Run, Trinity College** – ***3rd*** *(2021),* ***2nd*** *(2022),* ***1st*** *(2023) –* ***Beating the Clock in 2023 (first in 4 years)***
- **Ultimate Frisbee UK National Championship** – ***6th*** *(2023) –* ***Representing Cambridge***
- **International Acrobatic Basketball Cup** – ***4th*** *(2018) – Member of* ***FaceTeam*** *Youngsters*
- **Rubik's cube speed-solving** – ***14 second average*** *– 20x National* ***Top 20*** *rankings*

Activities

- **Captain** – *Trinity College Ultimate Frisbee Team: leading training sessions and matches*
- **Events Officer** – *Cambridge University Hungarian Society (2021–2022)*
- **Junior Counsellor** – *European Summer Program on Rationality (2022)*
- **Talent management** *in Computer Science & Mathematics (weekly)*
- ***Always*** *open to discuss interesting and funky puzzles and brain teasers*

Additional Achievements

Mathematics

- Arany Daniel Mathematiacs Championship – ***4th*** *(2019) – Reiman Istvan Award for most beautiful solution*
- Naboj International Mathematics Competition – ***4th*** *(2018)*
- Varga Tamas Mathematics Competition – ***7th*** *(2017)*
- Medve Outdoor Mathematics Contest – ***7th*** *(2017)*
- Zrinyi Ilona Mathematics Competition – ***7th*** *(2018),* ***11th*** *(2017)*
- Mathematics National Olympiad – ***12th*** *(2021)*
- KOMAL Mathematics year-round contest – ***13th*** *(2021)*
- Kalmár László Mathematics Competition – ***14th*** *(2017)*
- Kenguru Mathematics Competition – ***14th*** *(2018),* ***27th*** *(2016)*

Computer Science

- Hack Cambridge Atlas – ***Top 6*** *(2021)*
- Coding Tomorrow Cup – ***11th*** *(2019)*
- Computer Science National Olympiad – ***13th*** *(2021),* ***14th*** *(2020)*

Physics

- KOMAL Physics year-round contest – ***6th*** *(2021),* ***9th*** *(2020)*
- National Olympiad in Physics – ***7th*** *(2021)*
- International Naboj Competition – ***10th*** *(2018)*
- Mikola Sandor Physics – ***11th*** *(2018),* ***15th*** *(2019)*
- International Olympiad of Astronomy and Astrophysics – *Qualified to final selection (2019)*

Robotics

- FIRST Global Challenge, Mexico – ***8th*** *(2018) – 180 countries participating*
- FIRST Lego League Challenge – ***9th*** *(2018) – Senior International Finals*
- World Robot Olympiad, Thailand – ***Finals*** *(2018)*
- FIRST Global Challenge, Dubai – *Selected as a* ***team mentor*** *for the national team (2019)*

Summary

While most thrive by narrowing their focus to a handful of subjects, my journey stands out by engaging with ***diverse fields*** *and* ***achieving top-tier results in each*** *one, demonstrating a unique combination of* ***depth and breadth of knowledge****. In addition, I have dedicated significant time to enhance crucial social skills such as teamwork, strategic planning, leadership, and teaching.*