



Trương Hoàng Long – CV

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Education

2019-2023 BSc. Computer Science – ETH Zürich

2016-2019 Computer Science Honors – VNU-HCM High School for the Gifted

Employment History

Jun 2023 - current e.solutions GmbH
C++ Software Engineer

I help maintain and optimize the company's internally-used code generator / compiler. My work focuses on optimizing the generated C++ code for speed and binary size, and refining the DSL down to its core components without sacrificing functionality and ease-of-use.

Technologies: C++, Python, Git

Sep 2020 - Jan 2021 ETH Zürich
Teaching Assistant

I was teaching assistant for Algorithms Lab HS2020, a Master's level course on solving algorithmic problems using dynamic programming, network flow, computational geometry (Delaunay triangulation & Voronoi diagrams in particular), as well as linear programming.

Technologies: C++, CGAL (Computational Geometry Algorithms Library), BGL (Boost Graph Library)

Technical Skills

Programming languages C++, Rust, Python, C.

Supporting technologies Linux, Git, Bash.

Languages

Vietnamese — Native

English — Bilingual-fluency (108/120 TOEFL iBT)

German — Bilingual-fluency (80/100 Goethe Zertifikat C1, Prädikat "gut")

Awards and Honors

2022 Winner, START Hack - SBB Challenge

2021 Silver Medal, ICPC Southwestern European Regional Contest (SWERC)

2019 Silver Medal, Vietnamese National Olympiad in Informatics (VOI)

2018 Silver Medal, ICPC Vietnamese National Contest

2018 Silver Medal, Vietnamese National Olympiad in Informatics (VOI)

Research

- **Collecting privacy policies and terms & conditions on a regular basis (Bachelor thesis)**

I improved upon previous work to create a web crawler that classifies and extracts privacy policies and terms & conditions with high accuracy for use in future legal research.

- **Using the Shortest Path Faster Algorithm to find a negative cycle**

I proposed a modification to the Shortest Path Faster Algorithm (SPFA) to efficiently detect negative cycles in weighted directed graphs.

<https://koniaekira.github.io/posts/using-the-shortest-path-faster-algorithm-to-find-negative-cycles.html>

- **Segmented SPFA: An improvement to the Shortest Path Faster Algorithm**

I proposed a way to improve the constant-factor in the runtime of the Shortest Path Faster Algorithm (SPFA) on weighted directed graphs that have a large amount of strongly connected components.

<https://koniaekira.github.io/posts/segmented-spfa-an-improvement-to-the-shortest-path-faster-algorithm.html>

Projects

- **Raphael (FFXIV)**

A crafting macro solver for the online game FFXIV. Exhaustive search with automatic branch pruning. Pareto fronts and dynamic programming among other things are used to assist in branch pruning.

Technologies: Rust

<https://github.com/KonaeAkira/raphael-rs>

- **SBB Bike Reservation Planner**

Developed during 2022's "START Hack" Hackathon. Solves the problem of predicting bike crowdedness for future trains using k-means clustering.

https://github.com/samuelbohl/START_HACK_2022_SBB

- **Skyblocker**

A Minecraft fabric game modification that brings QoL changes to Hypixel Skyblock.

Technologies: Java

<https://github.com/SkyblockerMod/Skyblocker>

- **Procedural Terrain Generation via Hydraulic Erosion Simulation**

A program that simulates the effects of hydraulic erosion on a randomly sampled height map to produce realistic terrain.

Technologies: C++

<https://github.com/KonaeAkira/erosion-sim>