

# Trương Hoàng Long – Résumé

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## Introduction

Hi! I am a Computer Science student with a burning passion for programming and technology. Sometimes I work on fun projects and/or participate in programming competitions!

## Education

- 2019-now** BSc Computer Science - ETH Zürich  
Basisjahr - 5.5 GPA
- 2016-2019** Computer Science Honors - VNU.HCM High School for the Gifted

## Employment History

- Sep 2020 -** ETH Zürich  
**Jan 2021** *Teaching Assistant*

I was teaching assistant for Algorithms Lab, a **Master's level** course on solving algorithmic problems using network flow, computational geometry (in particular Delaunay triangulations), and linear programming.

**Technologies:** C++, CGAL, BGL

## Awards and Honors

- 2021** Silver Medal, ICPC Southwestern European Regional Contest  
**2019** Silver Medal, Vietnamese National Olympiad in Informatics  
**2018** Silver Medal, ICPC Vietnamese National Contest  
**2018** Silver Medal, Vietnamese National Olympiad in Informatics

## Past Projects

### ■ Gomoku

Server and client for the classical game of gomoku (connect 5, tic-tac-toe). Written in Javascript. The server runs on Node.js and the server and client communicate over websockets.

**Technologies:** HTML, CSS, Javascript, Node.js (express, websocket)  
<https://github.com/Konaekira/gomoku>

### ■ Minesweeper X

A bot based on image recognition that can play Microsoft's Minesweeper X on Windows 10.

**Technologies:** C++  
<https://github.com/kuronil/minesweeper-bot>

## Skills

- **Programming Languages**

*C++* - CGAL, Boost

*Javascript* - jQuery, Node.js

*Haskell*

*Python 3* - Pandas, Numpy

- **Languages**

*Vietnamese* - Native

*English* - 108/120 TOEFL iBT

*German* - 80/100 Goethe Zertifikat C1

## Publications

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

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

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