

Ryan Petschek

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Education

Georgia Institute of Technology — Atlanta, GA

August 2016 – May 2020

- Major: Computer Science, concentrating in Information Internetworks and Systems & Architecture
- GPA: 3.1

Skills

Programming languages: HTML / CSS, JavaScript, TypeScript, C#, Python, Java, (proficiency in C++, Rust)

Tools: Git / GitHub, Visual Studio / Xamarin, Node.js, Android, MATLAB, Nginx, Docker, Kubernetes, ROS

Spoken languages: Fluent in German (certified by the Goethe Institute), proficient in French

Experience

HackGT Organizing Team | Co-Director

November 2017 – Present

- Lead HackGT, a 501(c)(4) non-profit and chartered Georgia Tech student organization, and its 60+ members in planning, preparing, and running HackGT's hackathons, tech talks, and workshops attended by thousands of students and supported by more than 40 sponsors annually.
- Build and maintain relationships with professors, administrators, and other student groups at Georgia Tech and members of industry and the Atlanta community to make HackGT's goal of promoting computer science education to students of all types and disciplines a reality.

HackGT Organizing Team | Registration and Check-In Project Lead

October 2016 – Present

- Developed and built open-source and scalable registration and check-in web applications in TypeScript capable of handling nearly 10,000 applications in the past year from participants, mentors, and volunteers from across the United States and around the world for HackGT events, including the Southern United States' largest hackathon.
- Led coordination with other internal HackGT team members across the tech, design, communications, and operations teams to determine requirements, delegate assignments, and coordinate deployment on our self-built Kubernetes-based cloud infrastructure.
- Architected a free and integrated ecosystem for HackGT's hackathon software that is fully customizable and ready-to-use by hackathon organizers from other schools, reducing the time and financial investment required to run successful events.

Robot Autonomy and Interactive Learning Lab | Research Assistant

May 2017 – August 2018

- Assembled a cohesive and easy-to-use set of software tools as ROS packages written in C++ and Python that allows robots to learn from demonstrations by nonexpert users to accomplish tasks without programming experience.
- Implemented an advanced object recognition pipeline that allows a robot to observe and adapt to changes in an object's position and orientation without requiring additional training data which is currently being using in ongoing research projects.

Greens Farms Academy | Contracted Software Developer

February 2014 – March 2018

- Awarded contract by school administration to design and develop a Polymer and JavaScript-based web application that allows 375+ upper school students and faculty to register, view their schedules, and provide feedback for an all-day symposium consisting of 12th grade research presentations on global issues and scientific research.

Projects

Hackathon Projects

- Won "Best Use of Encryption" prize at **HackGT 3** with an end-to-end encrypted personal information storage tool using the Web Crypto API.
- Won 2nd place at **HoloHack ATL** with smart city AR project in C# for Microsoft HoloLens that helps people navigate unfamiliar cities.
- Won "#1 Made from Scratch" prize at **HackMIT** with disaster recovery and evacuation platform for Android for victims and first responders.

Agent-Based Model and Analysis of Troop Placement in the Russo-Georgian War

- Built and calibrated an interactive model for a military modeling and simulation course to analyze the effects of different troop placement strategies by Russian and Georgian forces in the 2008 Russo-Georgian War in terms of conflict time, scale, and casualties sustained.
- Designed and performance-optimized a realistic unit routing engine in TypeScript on Node.js that incorporates road network directions, elevation differences, and various terrain types and features when deciding where and how quickly units should travel and engage.

GT Buses – Realtime Bus Tracking Alexa Skill

- Aggregated live location data and designed an intuitive voice-based UI for requesting the estimated arrival times of Georgia Tech buses.

Beatbox – Unofficial Google Play Music Client

- Reverse engineered and reimplemented a subset of Google Play Music's undocumented web and mobile APIs in Rust.
- Learned Rust's low-level yet powerful memory model and how to write complex networking, cryptography, and asynchronous code in it.
- Working to bring the client up to feature parity with the official client and various other 3rd party open source implementations.