Joshua G. Send

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joshuasend.me

Education

MEng Distinction, Computer Science, University of Cambridge | *2017 - 2018*

Large Scale Data Processing and Optimization // Probabilistic Machine Learning

Computer Vision // Modern Compiler Design // Advanced Topics in Computer Systems

Dissertation: "Offboard Camera Placement for Autonomous Robot Navigation"

1St Class BA Hons, Computer Science. University of Cambridge | *2014 – 2017*

Dissertation: "Conflict Free Document Editing with Different Technologies"

4.69 GPA (3.92 unweighted), Torrey Pines High School, San Diego, USA. | *2010 - 2014*

Technical Skills

Languages: Python, Java, C/C++, HTML/CSS/JS/TS

Python, Java, used in production at Grakn.ai. C++/JS/TS used at Autodesk in 2016. JS/TS extensively in 3rd year dissertation. C/C++ used in CS curriculum, research internship. Masters coursework projects: Python/C++, machine learning projects and dissertation. Web technologies via several personal projects.

Databases: Grakn.ai, MySQL

Theory: Compiler & database theory, distributed systems, Machine learning, language semantics

Experience with: TensorFlow, Pytorch, LLVM, ArduPilot, Prolog, MongoDB

Experience

Grakn.ai Software Engineer | *2018 -*

Joined Grakn.ai as a software engineer with a focus on optimising database query performance, but also touching on language theory, compilers, and machine learning.

Masters Dissertation (Cambridge) | *2017 - 2018*

Examined moving cameras from robots to the environment, aiding navigation. The final implementation involved ray tracing, kalman filtering, vehicle controllers and various optimisation algorithms. The work derived bounds on bounds on sensor placements, required camera vehicle detection algorithms accuracies, and optimal camera configurations to help robotic navigation tasks as a function of path shape.

Masters Coursework Projects | *2017 - 2018*

Large Scale Data Processing: "Tradeoffs Between Sync. and Async. Engines in PowerGraph"
Prob. Machine Learning: "Combining Neural Nets with Gaussian Processes to capture Uncertainty"
Computer Vision: "Semantic region retexturing using Segmentation and Style Transfer networks"
Modern Compiler Design: "JIT Deoptimisation support in Mysorescript" (toy Javascript-like language)

Bachelors Dissertation (Cambridge) | *2017*

Created and compared a collaborative text editor using CRDTs versus OT (tech backing Google Docs), then extended CRDT for undo/redo operations. Conclusion: CRDTs perform better under high concurrency and replication while OT works well for large documents.

Research Intern, Cambridge University | *Summer 2017*

Worked under Prof. Cecilia Mascolo on drone-to-drone collision avoidance using ADS-B. Built framework for evaluating existing collision avoidance in the AruPilot firmware, then outlined a novel strategy for n-way deconfliction using uni-directional communication.

Intern, Autodesk Inc. (San Francisco) | *Summer 2016*

Developed prototype functionality for AutoCAD, predicted to be in production in a few years. Worked with JS/TS for prototype, then added basic functionality to AutoCAD core (C++). NDA.

Intern, TNG Technology Consulting (Munich) | *Summer 2015*

In scrum team of developers for a client's web-shop. Regularly nteracted with the client's representative. Configured Lobster intermediary between different servers, debugged web-frontend Javascript and extensively modified SQL database for ecommerce upgrade, notably for flexible product categorization.

Cambridge Year 2 Group Project | *2016*

Leader & developer on a team of 6 building an effective interface for exploring large forums by topic and sentiment, in order to extract conclusions of value to the sponsoring company Jagex.

Science Fair | *2013*

Localizing impacts on a 2-D plane using three accelerometers, an Arduino, and wavelet analysis. 1St place category, multiple awards & progression to California State Science Fair.

Hackathons | *2014-2017*

Hack Cambridge '18: automatic image captioning in VR. Hack Cambridge '17: IOT pidgeonhole mail sensor notifier. Jane Street Hackathon '14 & '15: algorithmic trading challenge. LAHacks '14.

Personal Projects

FFT based lights/music sync – LED lights synced to beats in music using a real time FFT processed on an Arduino (see joshuasend.me for video)

Trinity Hall Room Selection system – Website visualizing college floor plans and fills in occupancy information with student details in real time. Uses HTML/JS/CSS/SVG frontend and Python backend.

Trinity Hall June Event Webmaster – create website for college's yearly end of the year ball – http://joshuasend.me/JE/v1_TokyoToKyoto/index.html & http://joshuasend.me/JE/v2_Metropolis/index.html

Political Information Website (Australia) – working with Australian politics student to help cure the general political apathy present in Australia (React prototype http://joshuasend.me/whatfloatsyourvote/)

Other Skills & Experience

Languages – English (fluent), German (fluent), Spanish (medium level)

Sport – Tennis (10 years including high school varsity level), Rowing

Hobbies – Producing wooden bows and archery, Skiing, Reading, Hiking, Camping, Piano