

Kyle Simpson

Computing Science Ph.D. candidate seeking research internships.

RELEVANT EMPLOYMENT EXPERIENCE

October 2016 – Current Lab Demonstrator/Tutor, University of Glasgow

- Demonstration and assistance for third year and MSc classes on Java, C, concurrent programming, compiler design and networks.

July 2016 – September 2016 Software Development Intern, TBR Global

- Development of a visual editor in TypeScript/HTML5 and responsive CSS3, with JSON/SVG export.
- Integration of this editor within an ASP.NET MVC booking system, making use of C#, VB.NET and SQL.

June 2016 – July 2016 Research Intern, University of Glasgow

- Problem model design, implementation and optimisation in Constraint and Integer Programming paradigms (Choco3 and Gurobi solvers) working with Dr. David Manlove and Dr. Patrick Prosser.
- Experimental design and implementation.
- Analysis, presentation and reporting of findings with LaTeX and GnuPlot.

EDUCATION

2017 – Current Ph.D. Computing Science, University of Glasgow

- Supervised by Dr. Dimitrios Pezaros, “Securing Future Networked Infrastructures through Dynamic Behaviour Profiling”, as part of the Glasgow Systems Section (GLASS).

2012 – 2017 MSci Computing Science, University of Glasgow

- First class honours. Recipient of the class prize 2014–2016.
- Educational focus in electives and projects has centred on Operating Systems, Networking, Computer Vision and Algorithmics.
- MSci dissertation, “Graph Models and Maximum Common Subgraph for Character Analysis”, supervised by Dr. John Williamson and Dr. Patrick Prosser.
- BSc dissertation, “Onion-Routed Communication Over WebRTC”, supervised by Dr. Colin Perkins.

RESEARCH AND EXPERIENCE

My present research focusses on trying to combine recent advances in programmable networking (Software-Defined Networking, Network Function Virtualisation) with machine learning techniques for automated threat detection and control. The intended environments introduce the issues of learning from partial data, optimisation of agent locations and distributed learning. Currently, I am interested in the potential use of reinforcement learning in this context.

Historically, I have examined applications of modern graph search algorithms against graph models of images to investigate image similarity and associated computer-vision problems. I have experience and knowledge with combinatorial search and constraint satisfaction from this work and my prior internship. Past work on designing systems around onion routing has given me experience in robust network modelling

and design. Outside of this, I have a peripheral interest in computer graphics, rendering and game development.

CORE SKILLS

- Skilled in programming, mathematics, arithmetic and problem solving.
- Prior academic experience with overlay network design, security, combinatorial search, optimisation (constraint programming/mixed-integer programming), and graph problems.
- Extended web development experience:
 - Proficient with *WebRTC*, having leveraged the technology to develop peer-to-peer topologies targeting both client- and server-side deployment.
 - Familiarity with *NodeJS* for server application development and as a build platform.
 - *WebGL* and *Canvas* experience from previous game development work.
 - *HTML5* and *CSS* design experience, and past use of static site generators such as *Hugo*.
- Familiar with Object-Oriented and Imperative Programming paradigms in *JavaScript*, *TypeScript*, *Java*, *Rust*, and *C*, with light experience in *C++*. Scripting experience in *Python*, *Bash* and *PowerShell*.
- Able to cooperate and contribute with others effectively in a team working environment, having experience with both *Git* and *SVN*.
- Enthusiastic, hardworking, positive and reliable.

REFERENCES

References are available on request.

Updated January 2018