

Charlie Street

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As a highly driven individual with a strong academic record, I throw myself into any challenge I am confronted with. With extra-curricular experience working in teams, I believe I can add value to any team-based project.

Education

- **Postgraduate (2018-2022)** Studying DPhil Engineering Science at the University of Oxford.
 - Thesis Title: Multi-Robot Coordination under Temporal Uncertainty.
 - Supervised by Prof. Nick Hawes (Oxford Robotics Institute), Dr. Bruno Lacerda (Oxford Robotics Institute) & Dr.-Ing. Manuel Mühlig (Honda Research Institute).
 - My research interests are:
 - * Multi-Robot Systems
 - * Planning Under Uncertainty
 - * Continuous-Time Planning Models
 - * Formal Verification
- **Undergraduate (2014-2018)** Studied MSci Computer Science at the University of Birmingham.
 - Achieved average grades of **94%**, **95%**, **89.5%** and **93.3%** in each year chronologically.
 - Graduated July 2018 with a First Class with Honours (overall degree average of **92%**).
 - Won Best in Degree Programme 2014/15, 2015/16, 2016/17 & 2017/18.
 - Won Undergraduate Distinguished Dissertation Prize 2018.
 - Won BCS Prize for Best in Year 2014/15.
 - Won IBM Team Project Prize 2015/16.
 - Awarded School of Computer Science Excellence Scholarship during first year.
 - In April 2018 I submitted my master's dissertation titled: 'IntelliJam: An Intelligent Agent for Musical Improvisation'.
 - Completed modules in Intelligent Robotics, Machine Learning, Neural Computation, Operating Systems, Networks, Functional Programming and Computer Security among others.

Publications

- Charlie Street, Bruno Lacerda, Manuel Mühlig, and Nick Hawes. "Multi-Robot Planning Under Uncertainty with Congestion-Aware Models". In: *Proc. of the 19th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)*. Auckland, New Zealand, 2020.

Student Supervision

- **4th Year Project Supervisor:** Han Zhou (October 2018 - May 2019)
 - Topic: Auctioning for Multi-Robot Coordination
- **4th Year Project Supervisor:** James Wheadon (October 2019 - Present)
 - Topic: Multi-Agent Path Finding in Continuous-Time

Technical Skills

Programming Languages

- Python** I am very familiar with Python, having used it almost exclusively since starting my DPhil.
- C** I have strong experience with memory management, pointers etc.
- C++** I can use classes and templates on top of the underlying C functionality.
- Haskell** I have a reasonable understanding of Haskell and the functional paradigm.
- Agda** I can formulate inductive proofs over basic numbering systems and data structures.
- Java** I have a strong level of proficiency, having used Java heavily during my time at university.
- OCaml** I have an understanding of the syntax and underlying concepts of the language.

Other

- Git** I have experience using Git, having used it for any significant project I have partaken in.
- LaTeX** I've produced many documents in LaTeX, notably my dissertation.
- ROS** I've had experience working with/running robotics systems using the ROS middleware.

Projects

- **RoboCup (2018-Present)** I am the leader of team ORIon - the University of Oxford's RoboCup team. The aim is to develop a general purpose service robot for domestic tasks. My work in the team is concerned with high-level task planning. We have previously competed in the RoboCup@Home DSPL 2019 in Sydney, where we placed 6th, and have more competitions planned throughout 2020. The team has also previously demonstrated for HRH Prince William.
- **IntelliJam (2017-2018)** The software created alongside my master's dissertation. IntelliJam uses Fractal Prediction Machines to allow a guitar player to play whilst connected to a computer and have an agent respond to their playing with new musical phrases in real time. In addition to the agent, a new method of melody extraction based on spectrogram filtering was devised.
- **Dating Chat-Bot for 'The Gadget Show' (2016)** A project for the TV show to create a bot to partake in speed-dating. The goal was for an unknowing subject to choose the bot over a human. I led the back-end/AI sub-team; I was the majority contributor to the design and implementation of the bot. This forced me to think creatively while under time-pressure.
- **Simulizer (2016-2017)** A project initially undertaken for a second year module but continued since. Simulizer is a simulator and visualiser for a MIPS R3000 processor. Working in a team of 5, I was in charge of the back-end, requiring me to write a faithful simulation of the R3000 processor, including a primitive pipeline for execution. This has since been used as a significant teaching aid for the 'Computer Systems & Architecture' module at the University of Birmingham. Students had to write assignments in Simulizer; the assignments were graded using the software.
- See **GitHub** for more projects.