Colin Summers

Education

2018 – Present **M.S. Computer Science**
Paul G. Allen School, University of Washington, Seattle, Washington, USA
Advisor: Siddhartha Srinivasa

2018 **B.S. Computer Science, Lavin Entrepreneurship Program**
Paul G. Allen School, University of Washington, Seattle, Washington, USA
Grade: 3.85 / 4.0 *with Departmental Honors, Cum Laude*
Advisor: Dieter Fox

Experience

Professional

09/2017 – 12/2017 **Intern**, *Blue Origin*
Kent, WA, USA.
Supervisor: Brandon Haber
- Supported testing operations at the West Texas Launch Site and identified deficits in training procedures
- Developed engine and vehicle operator training tool utilizing hardware-in-the-loop simulation capabilities and incorporated tool into standard training procedures
- Presented training tool architecture and its impact on training quality at company-wide meeting

06/2017 – 08/2017 **Intern**, *NASA Jet Propulsion Laboratory*
Pasadena, CA, USA.
Supervisor: Brandon Rothrock, PhD
- Developed a comprehensive, physics-based simulation environment for comparing reinforcement learning algorithms against 240 human subjects on complex tasks
- Implemented a forward and inverse kinematics model for a multiple degree of freedom robotic arm
- Presented summary of research findings to department leads and published results in Cognitive Science 2018 Conference [1]

03/2017 – 06/2017 **Teaching Assistant**, *Paul G. Allen School, University of Washington*
Seattle, WA, USA.
Supervisor: Hal Perkins
- Designed and led weekly review section for CSE 333, Systems Programming
- Hosted weekly office hours and provided support for over 120 students

06/2016 – 08/2016 **Intern**, *NASA Glenn Research Center*
Cleveland, OH, USA.
Supervisor: Jeffrey Chin
- Developed an open-source, analytical, system-level model of the aerodynamic, electrical, and structural components in the Hyperloop system
- Identified, further assessed, and demonstrated the feasibility of various designs necessary for the viability of the Hyperloop vehicle concept and presented findings to AIAA SciTech conference and journal [2]

06/2014 – 01/2016 **Research Associate**, *Department of Chemistry, University of Washington*
Seattle, WA, USA.
Supervisor: David Ginger, PhD
- Synthesized organic polymer photovoltaic devices and tested device performance using JV, External Quantum Efficiency, and Fourier Transform Infrared Spectroscopy measurements
- Developed data analysis and processing tools for the lab

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05/2013 – 09/2013 **Ski Patroller**, *Ski Portillo*
Los Andes, Chile.
Supervisor: Frank Coffey
- Performed avalanche control, emergency medical services, and ski area management

Projects

01/2017 – 03/2018 **Autonomous Racecar**, *Independent*
Seattle, WA, USA.
- Designed and built an autonomous 1/10th scale racecar from commercial off the shelf parts as part of an honors research project

08/2015 – 01/2017 **Power Distribution & Thermal Management Lead**, *UWashington Hyperloop*
Seattle, WA, USA.
- Designed, built, and raced a scale version of the Hyperloop transportation concept in a SpaceX hosted engineering competition, placing 6th out of over 1200 international teams

Miscellaneous

07/2018 **Summer School on Cognitive Robotics**, *Massachusetts Institute of Technology*
Boston, MA, USA.
- Attended a week long workshop on robust execution under uncertainty and risk, motion and activity planning, perception, and manipulation
- Collaborated with fellow students on a multi-agent robotics "Grand Challenge"

08/2018 – Present **Beyond Silicon Valley Speaker Series**, *Paul G. Allen School, University of Washington*
Seattle, WA, USA.
- Independently developed and organized an ongoing speaker series featuring industry leaders in AI, aerospace, healthcare, and more to highlight the diverse set of opportunities available to students pursuing a computer science education

01/2017 – 04/2018 **Volunteer Ski Instructor**, *Husky Winter Sports*
Snoqualmie Pass, WA, USA.
- Provide personalized ski lessons at the beginner, intermediate, and advanced levels to children and adults alike

Featured Coursework

Robotics	Machine Learning, Artificial Intelligence, Robotics, Deep Reinforcement Learning
Computer Science	HW/SW Interface, Operating Systems, Data Abstractions, Probability, Logic, Systems Programming, Embedded Systems, Scientific Computing, Signal Conditioning, Computational Methods for Data Analysis
Mathematics	Calculus, Linear Algebra, Linear Analysis, Differential Equations
Physical Sciences	Honors Chemistry, Honors Organic Chemistry, Honors Physics, Chemical Transport, Computer Aided 3D Design

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Skills

Advanced	C/C++, Python, Julia, PyTorch, Linux, ROS, Spanish, System Design
Proficient	Reinforcement Learning, SolidWorks, Circuit Design, Operating Systems, Controls, Artificial Intelligence, Distributed Computing, Deep Learning

Honors & Awards

2018	Outstanding Senior Award, Paul G. Allen School
2018	NSF REU Grant Recipient
2018-Present	Phi Beta Kappa
2017-Present	Tau Beta Pi
2016-Present	NASA Academy Alumni Association
2016, 2017	Burkhardt Family Endowed Scholarship (served as keynote speaker for 2017 year)
2015, 2016	Hal C. Rathvon Memorial Scholarship
2015	James A. Hewitt, Jr. Endowed Scholarship

Publications

[1] M. Edmonds, F. Kubricht, James, C. Summers, Y. Zhu, B. Rothrock, S.-C. Zhu, and H. Lu, "Human causal transfer: Challenges for deep reinforcement learning," in *40th Annual Meeting of the Cognitive Science Society*, 2018.

[2] K. Decker, J. Chin, A. Peng, C. Summers, G. Nguyen, A. Oberlander, G. Sakib, N. Sharifrazi, C. Heath, J. S. Gray, *et al.*, "Conceptual sizing and feasibility study for a magnetic plane concept," in *55th AIAA Aerospace Sciences Meeting*, p. 0221, 2017.

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