Timur Javid

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EDUCATION

University of Illinois Urbana-Champaign (UIUC)

Doctor of Philosophy in Electrical and Computer Engineering	August 2022 – Current
Master of Computer Science (5-year BS/MCS)	August 2017 - May 2022 (GPA: 3.90)
Bachelor of Science in Computer Science	

Relevant Coursework:

Applied Machine Learning ● Artificial Intelligence ● Autonomous Vehicle System Eng. ● Computer Vision ● Distributed Systems ● Information Theory ● Quantum Cryptography ● Quantum Info Processing Theory ● Quantum Optics & Info ● Quantum Opto-Electronics ● Scientific Visualization

Illinois Mathematics and Science Academy — June 2017

ENGINEERING SKILLS

(By proficiency level)

●●●● Java	●●●● Python	●●●● C	●●●● C++	●●●○ Golang	●●●○ JavaScript
●●●○ HTML5/CSS3	●●●○ MySQL	●●○○ C#	●●○○ Haskell	●●○○ Rust	●●○○ MongoDB
●●●● Software Dev	●●●● Git	●●●● NumPy	●●●● SciPy	●●●○ React/Redux	●●●○ LaTeX

PRESENTATIONS, PROCEEDINGS, AND PAPERS

- A. Conrad, S. Isaac, R. Cochran, D. Sanches-Rosales, T. Rezaei, **T. Javid**, A.J. Schroeder, G. Golba, D. Gauthier, and P. Kwiat. *Drone-based Quantum Communication Links.* Proceedings of the SPIE Quantum West Conference, San Francisco CA, March 2023.
- D. Gauthier, R. Cochran, A. Conrad, G. Golba, A.Gutha, S. Isaac, **T. Javid**, AJ Schroeder, D. Sanchez-Rosales, B. Wilens, and P. Kwiat. *Technologies for drone-based quantum key distribution.* Proceedings of the SPIE Defense + Commercial Sensing Conference, Orlando FL, May 2022.
- S. Isaac, A. Conrad, AJ Schroeder, **T. Javid**, D. Sanches-Rosales, R. Cochran, A. Gutha, D. Gauthier, and P. Kwiat. *Drone-Based Quantum Key Distribution.* Proceedings of the Conference on Lasers and Electro-Optics (CLEO), San Jose CA, May 2022.
- A. Conrad, S. Isaac, R. Cochran, D. Sanchez-Rosales, T. Rezaei, H. Jones, AJ Schroeder, **T. Javid**, K. Meier, D. Gauthier, and P. Kwiat. *Drone-Based Quantum Key Distribution.* Poster presented at Chicago Quantum Summit, Chicago IL, November 2021.

PROFESSIONAL EXPERIENCE

Quantum Researcher Intern — May 2022 – August 2022

IBM Quantum Observability Dashboard Team

- Incorporated three live data sources from quantum systems monitoring into a backend data pipeline utilizing Apache Kafka, MQTT, and InfluxDB in Python, enabling observability for IBM Quantum systems.
- Enhanced data logging for existing alerts and notification system with a new data pipeline, bypassing logging to hard disk.
- Analyzed historical data to develop data visualizations with feedback from quantum researchers across teams.
- Constructed a front-end interface with the Carbon/React framework to display live data from quantum systems, linked with our InfluxDB backend.

Software Development Engineer Intern — May 2020 – August 2020

Amazon Web Services (AWS) IoT Edge Qualification Team

- Spearheaded and developed a front-end user interface for an existing hardware qualification tool using React/Redux and a Golang backend within two months.
- Developed a web API in Golang, allowing device tests to be run from HTTP requests and allowing users to obtain results from qualification tests.

- Integrated web API with a React/Redux front-end, providing users a visual representation of device tests, documentation for qualification standards, and feedback for which IoT services their hardware is compatible with.
- Led design meetings for the project, producing design documents and integrating feedback from code reviews and weekly meetings with peers and supervisors.

ACADEMIC EXPERIENCE

Graduate Research Assistant   May 2021 – Present

Kwiat Quantum Information Group
Under Paul Kwiat, Department of Physics @ UIUC

- Developing a drone-to-drone based quantum communication channel for quantum key distribution (QKD) utilizing a variation of BB84 decoy-state protocol.
- Adapting LDPC codes for QKD error correction and implementing privacy amplification for free-space QKD data using numerical key-rate analysis.
- Improving drone-to-drone locking performance through embedded systems development, such as integrating a high-performance ADC to interface with a RaspberryPi gimbal controller (C++).
- Integrated OpenCV detection and multi-threaded C++ code with PID and LQG control to improve locking performance, decreasing the average channel loss during air-to-air locking from 20.6 dB to 9.68 dB.
- Designing and implementing communications firmware on STM32 for self-annealing entanglement source to be tested on the International Space Station, in collaboration with the Laboratory for Advanced Space Systems at Illinois.

Student Researcher   September 2019 – August 2022

ScribeAR (Accessibility using Augmented Reality)
Under Lawrence Angrave, Department of Computer Science @ UIUC

- Maintained a codebase for an augmented reality (AR) compatible web application providing live captioning services, utilizing Web Speech API and integrating Microsoft Azure captioning in a React/Redux front end.
- Prototyped hardware using Arduino for sound localization to provide users with directionality in a heads-up display.
- Formulated an experiment to gather feedback on effectiveness of AR-based captioning in academic settings.

Course Assistant   January 2018 - May 2018

CS 125 – Intro to Computer Science (UIUC)

- Collaborated with teaching assistants in labs to teach students about the basics of Java programming and guided them through lab projects.
- Tutored students one-on-one during office hours to cement understanding of course concepts and mentored them through software development.

EXTRACURRICULARS

Director   August 2019 – May 2021

Midwestern Robotics Design Competition (MRDC)

- Built and maintained the organizational website to provide teams and sponsors with easy access to information.
- Established relationships with other corporations for fundraising and sponsorships.
- Organized outreach events, presenting at a local children's science museum to get children interested in robotics.
- Initiated media coverage of the competition to increase promotion and awareness.

MISCELLANEA

Hobbies

- Hiking & Backpacking: Backpacking and hiking is a great way to unwind and disconnect. I frequently look for new hiking trails locally and drive out to new places.
- Photography: you can check out some of my photos on my website! Taking photos in nature helps me appreciate my surroundings.
- Cooking: I see cooking as a way to connect with other people and cultures. I like to experiment with different cuisines and cooking styles. One of my favorite foods to make (and eat) is Neapolitan style pizza.