

Shyam Venkatasubramanian

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EDUCATION

Duke University **2021 – Present**
Ph.D. Student in Electrical and Computer Engineering
Advisor: Dr. Vahid Tarokh

University of California, Los Angeles (UCLA) **2018 – 2021**
B.S. in Electrical Engineering, Magna Cum Laude
Technical Breadth: Engineering Mathematics

Washington State University (WSU) **2016 – 2018**
Non-Degree Seeking, Dual Enrolled High School Student
Relevant Coursework:

- Graph Theory, Linear Optimization, Probability and Statistics, Intermediate Differential Equations, Applied Math I, Signals and Systems

RESEARCH EXPERIENCE

Duke Signal Processing and Applied Statistics Group (SPAS) **2021 – Present**

- Data-Driven Radar Target Localization
 - In collaboration with AFRL, ISL Inc, UDRI, Colorado State University
 - **Collaborators:** Dr. Sandeep Gogineni (ISL Inc), Dr. Bosung Kang (UDRI)
 - **Supervisors:** Dr. Muralidhar Rangaswamy (AFRL), Dr. Ali Pezeshki (CSU)
 - **Advisor:** Dr. Vahid Tarokh (Duke)

UCLA Laboratory for Robust Information Systems (LORIS) **2020 – 2021**

- Threshold and Early Waterfall Improvements of Structured LDPC Codes
 - In collaboration with Duke University
 - **Collaborators:** Dr. Siyi Yang (UCLA), Dr. Ahmed Hareedy (Duke)
 - **Supervisors:** Dr. Lara Dolecek (UCLA), Dr. Robert Calderbank (Duke)
- Information Reconciliation in the Quantum Key Distribution (QKD)
 - In collaboration with UCLA CQSE
 - **Collaborators:** Dr. Siyi Yang (LORIS), Murat Sarihan (CQSE)
 - **Supervisors:** Dr. Lara Dolecek (LORIS), Dr. Chee Wei Wong (CQSE)

WSU Systems-on-Chip Laboratory **2016 – 2018**

- Sampled Time Delay Based Multi-Input-Multi-Output Baseband Receiver
 - **Collaborators:** Dr. Erfan Ghaderi (WSU), Ajith S. Ramani (UBC)
 - **Supervisors:** Dr. Subhanshu Gupta (WSU), Dr. Sudip Shekhar (UBC)

PROFESSIONAL EXPERIENCE

- ATRC Intern, U.S. Air Force Research Laboratory (AFRL)** Summer 2022
- **Supervisor:** Dr. Muralidhar Rangaswamy
 - Joint project between SPAS (Duke) and AFRL.
- Engineering Intern, Schweitzer Engineering Laboratories (SEL)** Summer 2019
- **Supervisor:** Dr. Marcos Donolo
 - Developed FFT event extraction software for SEL 7xx relays.
- Technical Assistant, Washington State University EECS Department** Summer 2018
- **Supervisor:** Dr. Anjan Bose
 - Developed tools to visualize power system oscillations.

PUBLICATIONS AND PATENTS

- **Shyam Venkatasubramanian**, Sandeep Gogineni, Bosung Kang, Ali Pezeshki, Muralidhar Rangaswamy, Vahid Tarokh, *Subspace Perturbation Analysis for Data-Driven Radar Target Localization*. Accepted to IEEE Radar Conference, 2023 on 22 Jan. 2023
- **Shyam Venkatasubramanian**, Sandeep Gogineni, Bosung Kang, Ali Pezeshki, Muralidhar Rangaswamy, Vahid Tarokh, *Data-Driven Target Localization Using Adaptive Radar Processing and Convolutional Neural Networks*. Submitted to IEEE TAES
- **Shyam Venkatasubramanian**, Chayut Wongkhamthong, Mohammadreza Soltani, Bosung Kang, Sandeep Gogineni, Ali Pezeshki, Muralidhar Rangaswamy, Vahid Tarokh, *Toward Data-Driven STAP Radar*. Accepted to IEEE Radar Conference, 2022 on 27 Jan. 2022.
- Murat Can Sarihan, Siyi Yang, Kai-Chi Chang, **Shyam Venkatasubramanian**, Lara Dolecek, and Chee Wei Wong, *Photon-Efficient Energy-Time Entanglement QKD Using Spatially-Coupled Irregular-Repeat-Accumulate Error Correction Codes*. Accepted to Journal of the American Physical Society.
- Siyi Yang, Ahmed Hareedy, **Shyam Venkatasubramanian**, Robert Calderbank, and Lara Dolecek, *GRADE-AO: Towards Near-Optimal Spatially-Coupled Codes with High Memories*. Accepted to IEEE ISIT, 2021 on 30 April. 2021.
- Subhanshu Gupta, Erfan Ghaderi, Sudip Shekhar, **Shyam Venkatasubramanian**, and Ajith Sivadasan Ramani. *Spatial interference cancellation for simultaneous wireless and information power transfer*. US Patent US10804988B2. United States Patent and Trademark Office. 13 October. 2020.

AWARDS AND ORGANIZATIONS

Student Member, IEEE **2019 – Present**

IEEE Eta Kappa Nu (HKN) **2019 – Present**

- Inducted into the Electrical Engineering honor society at UCLA.

Dean's Honor List, UCLA **2019 – 2021**

- For all quarters between Spring 2019 and Spring 2021 with 15+ Completed Units.

United States DOE National Science Bowl Finalist **Spring 2018**

- Competed at the 2018 United States Department of Energy National Science Bowl Finals as captain of the Pullman High School science team.