

Tanvir Islam

📍 Sunnyvale, CA 94086

✉ tanvirislam.cs@gmail.com ☎ +1(860) 459-2366

🌐 [Personal Website](#) in [LinkedIn](#) 🐙 [Github](#) 🎓 [Google Scholar](#)

EDUCATION

University of Connecticut, Storrs, CT

Bachelor of Science in Engineering, May 2019

Double Major: Computer Science and Engineering, Electrical Engineering

GPA: 3.66 / 4.00

Related Courses: Algorithms, Data Structures, Systems Programming, C++ Essentials, Principles of Databases, Big Data, Operating Systems, Compilers, Computer Architectures, Probability, Theory of Computations, Digital Systems Design, Microprocessors

PROFESSIONAL EXPERIENCE

Google

Sunnyvale, CA

Software Engineer

July 2021 - Present

GCP BigQuery

- Developed and launched hive partitioning compatible APIs for BigQuery to support the workloads for customers such as Walmart, Spotify, PayPal
- Supported Apache Spark engine and open source file formats such as Parquet and Avro on BigQuery to allow for AI lakehouse data workloads

GCP Compute Engine

- Optimized the existing stateless distributed service to drive VM upgrades to handle 200 QPS with 30% improvement in the processing time of all VMs in a large cluster
- Designed and developed an internal productivity web app to automate the GPU capacity planning workflows that was used by Dynamic Workload Scheduler featured in [Google Cloud Next '24](#)
- Developed and implemented database disaster recovery for distributed service in serving path to increase their fault tolerance and reliability
- Researched and created an intern project to increase the reliability of an internal GCE VM schedulability calculator service
- Mentored an intern and new software engineers, equipping them with technical knowledge and business acumen to ensure their success at Google and beyond

Amazon

New York, NY

Software Development Engineer

June 2021 - July 2021

- Worked with the Amazon Ads Exchange team on streamlining the onboarding process of new ads source by creating a standard operation protocol (SOP) that decreased the time required to add and configure a new source

FactSet Research Systems

Norwalk, CT

Software Engineer

July 2019 - April 2021

- Created a new Content Management ETL pipeline using Python (NumPy, Pandas), improving the run-time of existing ingest/update jobs by more than 20%

- Optimized memory footprints of Python workflows handling 10-20 million database rows, reducing cloud storage costs by approximately 50%
- Developed a full-stack internal productivity tool with .NET, PostgreSQL, GraphQL, and Vue, enabling management of ~10k financial metadata records and providing a UI for easily adding and updating records

University of Connecticut - Fine Arts Dean's Office

Storrs, CT

Technical Support Specialist

September 2017 - May 2019

- Developed and maintained the front-end of the websites for UConn School of Fine Arts and Benton Museum with HTML, CSS (Bootstrap), JavaScript, jQuery, and WordPress
- Administered the server for museum's record database using EmbARK CMS, PowerShell
- Provided IT support to classrooms and exhibitions to ensure a reliable technical platform

RESEARCH EXPERIENCE

National Science Foundation Research Experience ([NSF REU](#))

Storrs, CT

Summer Researcher, University of Connecticut

May 2018 - August 2018

Collaborated with [Dr. Song Han](#) and [Dr. Shengli Zhou](#) to research software defined radio for real-time wireless communication systems. Using GNURadio framework, I developed an ad-hoc wireless system for inter-computer message transfer. I implemented O-QPSK (IEEE 802.15.4) on the PHY layer and created custom GNURadio blocks for the MAC layer using C++ (Boost/SWIG). I enhanced the security of the system by incorporating AES Cipher Block Chaining (CBC) protocol for message encryption. Python scripts facilitated testing message transmission across multiple computers. This work evolved into a senior design project where our team achieved a Packet Loss Ratio (PLR) of 8% for transferring the messages and [received honorable mention position](#) in the ECE department designs.

Department of ECE at University of Connecticut

Storrs, CT

Undergraduate Research Assistant

September 2016 - August 2018

Worked under the supervision of [Dr. John E. Ayers](#) to research buffer layers for metamorphic semiconductor devices, focusing on simulating and analyzing novel growth platforms for InGaAs/GaAs structures. I developed the algorithms on MATLAB to simulate chirped and unchirped superlattice structures and assess performance, applying theories from the Numerical Energy Minimization Model, Electric Circuit Model for Strained Layer Epitaxy, and Matthews-Mader-Light framework. We simulated the average and surface strain, in-plane lattice constant, and threading dislocation density profiles for the superlattice structures. We concluded that chirped superlattices are effective growth platforms with a 7%-46% Indium composition and that thickness-modulated chirped superlattices outperform unchirped superlattices and linearly-graded layers as dislocation filters. I authored several papers and presented research at the MIT IEEE Undergraduate Research and Technology Conference and the Connecticut Micro and Optoelectronics Conference.

TEACHING EXPERIENCE

Sylvan Learning Center

West Hartford, CT

Tutor

May 2015 - November 2015

- Conducted lecture sessions to prepare students for SAT Mathematics and constructed study packets for improved test scores
- Tutored high-school juniors and seniors in Algebra, Geometry, Trigonometry, Physics, and Chemistry and provided feedback on assignments

- Tutored students in Introduction to Programming with MATLAB, Calculus I/II, Physics for Engineers, and General Chemistry
- Lectured groups of students on programming concepts such as function, data structures, recursion, and good code-writing practices to improve comprehension and test scores

PUBLICATION

- Ayers J.E., Kujofsa T., Raphael J., **Islam M.**, (2020) "Recent Advances in the Modeling of Strain Relaxation and Dislocation Dynamics in ZnSSe/GaAs (001) Heterostructures". ECS Transactions, vol. 97, no. 4. IOP Publishing. <https://doi.org/10.1149/09704.0017ecst>
- **Islam M.**, Chen X., Khujofsa T., Ayers J.E., (2019). "Threading Dislocation Behavior in InGaAs/GaAs (001) Superlattice Buffer Layers". International Journal of High Speed Electronics and Systems, vol. 28, no. 03n04, p. 1940017. World Scientific Publishing Company. <https://doi.org/10.1142/S0129156419400172>
- **Islam M.**, Khujofsa T., Ayers J.E., (2019). "A Modeling Study of Dislocation Behavior in InGaAs/GaAs (001) and InAlGaAs/GaAs (001) Heterostructures Utilizing Strained-Layer Superlattices". ECS Transactions, vol. 92, no. 6, p. 31. IOP Publishing. <https://doi.org/10.1149/09206.0031ecst>.
- **Islam M.**, Chen X., Khujofsa T., Ayers J.E., (2018). "Threading Dislocations in Metamorphic Semiconductor Buffer Layers Containing Chirped Superlattices". International Journal of High Speed Electronics and Systems, vol. 27, no. 03n04, p. 1840028. World Scientific Publishing Company. <https://doi.org/10.1142/S0129156418400281>
- **Islam M.**, Chen X., Khujofsa T., Ayers J.E., (2018). "Chirped Superlattices as Adjustable Strain Platform for Metamorphic Semiconductor Devices". International Journal of High Speed Electronics and Systems, vol. 27, no. 01n02, p. 1840009. World Scientific Publishing Company. <https://doi.org/10.1142/S0129156418400098>
- Chen X., **Islam M.**, Kujofsa T., Ayers J.E., (2017) "Comparison of Chirped Superlattices and Linearly-Graded Buffer Layers As Adjustable-Strain Platforms for Metamorphic InAaAs/GaAs (001) Devices". ECS Meeting Abstracts, vol. MA2017-02, IOP Publishing. <https://doi.org/10.1149/MA2017-02/29/1247>

RESEARCH POSTERS

- **Islam M.**, Chen X., Cai M., Khujofsa T., Ayers J.E., "Comparison of Chirped and Unchirped Superlattices as Dislocation Filters for Metamorphic InGaAs/GaAs (001) Devices". Poster presented at the Materials Science and Technology Conference, Ohio, October 2018
- **Islam M.**, Chen X., Khujofsa T., Ayers J.E., "Threading Dislocations in Metamorphic Semiconductor Buffer Layers Containing Chirped Superlattices". Poster presented at the Connecticut Micro and Optoelectronics Conference 2018, New Haven, CT
- Khujofsa T., Cai M., Chen X., **Islam M.**, Ayers J.E., "Optimization of Graded Buffer Layers for Metamorphic Semiconductor Devices". Poster Session Presented at the Connecticut Micro and Optoelectronics Conference 2018, New Haven, CT
- Chen X., **Islam M.**, Khujofsa T., Ayers J.E., "Comparison of Chirped and Unchirped Superlattices as Buffer Layers for Metamorphic InGaAs/GaAs (001) Devices". Poster presented at the MIT IEEE Undergraduate Research and Technology Conference 2017, Cambridge, MA

- Chen X., **Islam M.**, Khujofsa T., Ayers J.E., “Comparison of Chirped Superlattices and Linearly-Graded Buffer Layers as Adjustable-Strain Platforms for Metamorphic In-GaAs/GaAs (001) Devices”. Poster presented at the 232nd Electrochemical Society Meeting 2017, National Harbour, MD
- **Islam M.**, Chen X., Khujofsa T., Ayers J.E., “Chirped Superlattices as Adjustable Strain Platforms for Metamorphic Semiconductor Devices”. Poster presented at the Connecticut Micro and Optoelectronics Conference 2017, Storrs, CT

TECHNICAL SKILLS

Programming	C/C++, Java, Python, JavaScript, R, MATLAB
Data ETL & Analytics	BigQuery, Apache Spark, PostgreSQL, MongoDB, Apache Cassandra, Elasticsearch, Kafka
ML & Frameworks	Tensorflow, PyTorch, XGBoost, Seaborn, Pandas, NumPy
Web Development	HTML, CSS, JavaScript, React.js, Vue.js, Node.js, Django, .NET Core
Deployment Tools	GCE, Kubernetes, AWS EC2, Terraform, Streamlit, HuggingFace

HONORS & AWARDS

- **Honors Society** for Electrical and Computer Engineers (UConn HKN) 2016 - 2019
- **Best undergraduate research poster** at the CMOC Conference 2017, 2018
- **University of Connecticut Engineering Scholarship** recipient 2016
- **Governor's Academic Incentive Award** for academic excellence 2015
- **Dean's List** for academic achievement Fall '14, Spring '15, Fall '15, Spring '18