# Eshan Agarwal

703-751-1370 | eshan27@vt.edu | linkedin.com/in/eshan-agarwal | eshan-agarwal.org

## Education

**Virginia Tech** Blacksburg, VA
*Bachelor of Science in Computer Science* *Expected Graduation: May 2026*
GPA: 3.75

## Technical Skills

**Languages**: Java, Python, C++, Solidity, JavaScript, HTML/CSS, Assembly, RISC-V, Go, Rust, Bash
**Frameworks**: React, Node.js, REST APIs, Spring Boot, MongoDB, SQL, TypeScript, Next.js
**Developer Tools**: Git, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse, Wireshark, Nmap, Burp Suite
**Libraries**: NumPy, Matplotlib, PyPanda, scikit-learn, PyTorch
**DevOps/Infra**: Docker, Kubernetes, AWS, Azure
**Methodologies**: Agile, Scrum
**Honors**: Dean's List (Every Semester), Eagle Scout

## Projects

**Forever Storage** | *Solidity, JavaScript, Node.js* May 2024 – Current
- Developing a blockchain-based full-stack solution to store files as a cost-effective alternative to traditional cloud storage services.
- Implementing encryption and secure user authentication to ensure privacy and data integrity.
- Designing smart contracts that manage file storage, access rights, and user interactions on the blockchain.

**Cush** | *C, Unix, POSIX* February 2025 – May 2025
- Engineered robust job control and process management by handling asynchronous signals (e.g., SIGCHLD, SIGINT, SIGTSTP).
- Implemented built-in commands (jobs, fg, bg, kill, stop, exit) and managed process groups for effective foreground/background execution.
- Addressed race conditions by strategically blocking/unblocking signals during critical operations to maintain terminal state integrity.

**Credit Card Fraud Detection** | *Python, Jupyter Notebook, Machine Learning* September 2024 – Current
- Developed custom machine learning models from scratch using Python and Pandas to detect fraudulent transactions on a highly imbalanced dataset.
- Implemented two distinct approaches: a decision tree model using entropy-based splits (C4.5) and a logistic regression model optimized via gradient descent.
- Applied data preprocessing techniques including random under-sampling to address severe class imbalance (fraudulent cases constitute only 0.172% of transactions).
- Optimized hyperparameters—such as maximum tree depth and number of epochs—to mitigate overfitting and improve key evaluation metrics (precision, recall, F1 score, and AUPRC).
- Ensured reproducibility by setting fixed random seeds and employing an 80/20 train-validation split, enabling consistent model performance across multiple runs.

## Experience

**Information Technology Support Specialist** June 2022 – August 2022
*Fairfax Department of IT* *Fairfax, VA*
- Supported asset management operations, including inventory management and refurbishment of laptops.
- Collaborated with the Desktop Support team to resolve IT issues using Microsoft remote assistance and direct support.
- Assisted the Telecommunications department with phone inventory management and testing activities.

**Information Security Intern** May 2025 - Present
*Triple Point Security* *Blacksburg, VA*
- Collaborating with Microsoft teams to secure client cloud infrastructure using VMWare and container tools
- Assisting in penetration testing, risk assessments, and writing technical documentation for client-facing reports
- Leveraging tools like AWS CLI and Microsoft Azure to support security automation and infrastructure as code.