



Welcome Juniors

Let's spend some quality time so that you won't have to pursue farming. . .

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Computer Science and Engineering Discipline
Khulna University

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What we'll talk about

CSE Keno Porte Esechi?

CSE Pore Ki Ki Houa Jay?

Roadmap

Free Resources

Stay Tech-Savvy

EXPLORE

GitHub



CSE Keno Porte Esechi?

► Keno?



CSE Keno Porte Esechi?

- ▶ **Curiosity:** How does Google search work? How do games run?
- ▶ **Creation:** The ability to build an entire world with just a keyboard.
- ▶ **Problem Solving:** Turning complex real-world problems into logical solutions.
- ▶ **Impact:** Engineering software that millions of people use.



CSE Pore Ki Ki Houa Jay?

► Ki hote cai?



Beyond just "Coder"

- ▶ **Software Engineer** (Web, Mobile, Desktop)
- ▶ **Data Scientist / AI Engineer**
- ▶ **Cybersecurity Specialist**
- ▶ **DevOps & Cloud Engineer**
- ▶ **Network Engineer**
- ▶ **Game Developer**
- ▶ **System Architect**
- ▶ **Academic Researcher**
- ▶ **Tech Entrepreneur**
- ▶ **Dead Domains: Front End, UI/UX Design**



Roadmap (Internationally Recognized)

- ▶ `https://roadmap.sh/`
- ▶ `https://roadmap.sh/frontend`
- ▶ `https://roadmap.sh/frontend/projects`
- ▶ `https://roadmap.sh/backend`
- ▶ `https://roadmap.sh/backend/projects`
- ▶ `https://roadmap.sh/full-stack`



Learning for Free (The Best Way)

- ▶ **Where?:** FreeCodeCamp, Coursera, edX, Udemy (look for free courses or financial aid), Codecademy, The Odin Project, <https://www.howtocode.dev> , <https://www.boot.dev/> , <https://codeberg.org>
- ▶ **Open Source Society University (OSSU):** A complete CS curriculum using free resources (ossu.dev).
- ▶ **MIT OpenCourseWare:** Access to actual MIT course materials for free (ocw.mit.edu).
- ▶ **NPTEL (National Programme on Technology Enhanced Learning):** Indian initiative offering free courses from top universities (nptel.ac.in).
- ▶ **Documentation:** MDN (Web), CppReference, Official Docs.
- ▶ **GitHub:** The world's largest open-source classroom.
- ▶ **Communities:** Stack Overflow, Discord servers, **Reddit** (r/cscareerquestions).



Useful YouTube Channels

- ▶ **Fireship:** @Fireship (Tech concepts in 100 seconds)
- ▶ **Core Dumped:** @CoreDumpped
- ▶ **Computerphile:** @Computerphile
- ▶ **Branch Education:** @BranchEducation
- ▶ **CodeSource:** @CodeSource
- ▶ **Datastream:** @datastream_yt
- ▶ **Veritasium:** @veritasium
- ▶ <https://www.youtube.com/@dr-Jonas-Birch>
- ▶ <https://www.youtube.com/@ThePrimeTimeagen>
- ▶ <https://www.youtube.com/@TsodingDaily>
- ▶ <https://www.youtube.com/@TheCherno>
- ▶ <https://www.youtube.com/@lauriewired>
- ▶ and many more. . .



Keep in touch with Tech

- ▶ **Newsletters:** ByteByteGo, It's FOSS (itsfoss.com), etc.
- ▶ **Podcasts:** Lex Fridman.
- ▶ **Social Media:** Follow engineers (not just influencers) on X/Twitter and LinkedIn.
- ▶ **RSS Feeds:** Hacker News, TechCrunch.
- ▶ **Events:** Attend meetups, hackathons, and seminars.
- ▶ **Social Media:** Facebook: Fun and time wasting things (sadly, widely used), LinkedIn: Professional , X/Twitter: Real-time tech updates, Reddit: Community discussions and strong developer communities, **dev.to**: Developer-focused articles and insights.



Don't just stick to the syllabus

- ▶ $2 + 2 = 4$
- ▶ **Try everything:** Web, Mobile, AI, Blockchain, Game Dev, Embedded. (Even if you don't like it, you'll learn something.)
- ▶ **Build things:** . . .
- ▶ **Break things:** Understand how they work by taking them apart (metaphorically).
- ▶ **Explore Awesome Lists:** github.com/sindresorhus/awesome
- ▶ **Join a Club:**
- ▶ **The Goal:** Find what makes you *actually* excited to wake up and code.



GitHub: Your Digital Portfolio

- ▶ Open your github account and start pushing code. Even if it's just a "Hello World" project.
- ▶ Keep your all codes there!
- ▶ <https://youtu.be/GOaYludOZqo?si=YZaicEUW5ZcMwNVy>
- ▶ GitHub Student Developer Pack (<https://education.github.com/pack>) - Free access to tools like GitHub Pro, JetBrains, DigitalOcean, and more.



EduMail Benefits

- ▶ REMINDER: 4 years of free edu email from KU.
- ▶ More than mail: many companies offer free/discounted tools to students using your university email (yourID@ku.ac.bd).
- ▶ Examples: CamScanner, AutoCAD, JMP, Microsoft Azure, Notion, Figma (logo displayed without text label), Tableau, JetBrains, GitHub.
- ▶ Some services may request Student ID verification—worth doing to get premium features. (SheerID)
- ▶ Microsoft Azure for Students: \$100 in credits and free access to services.
- ▶ JetBrains Student License and Notion Personal Pro: free educational access.
- ▶ Good News @cseku.ac.bd



Practice Programming

- ▶ Practice: [sanfoundry.com](https://www.sanfoundry.com)
- ▶ Code Visualizer: pythontutor.com/visualize.html#mode=edit



Competitive Programming (CP)

- ▶ **Codeforces/...**: Focus on logic, math, and speed. It's like a mental gym.
- ▶ **LeetCode**: Focused more on interview patterns and standard DSA.
- ▶ **Why do CP?**
 - ▶ Problem-solving skills.
 - ▶ Debugging becomes second nature.
 - ▶ Highly valued by ALL tech companies.

Building Your Resume Early

- ▶ **Projects Matter:** Real-world applications > Certificates.
- ▶ **GitHub Profile:** Keep your green squares coming!
- ▶ **Simplicity:** Keep it 1-2 pages, clean, and professional, and FULL OF CONTENTS.
- ▶ **Keywords:** Use relevant tech stack names.

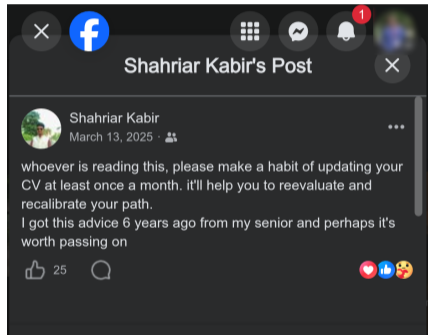


Figure: Start early!



CV Examples

Ataf Fazledin Ahamed

Fairfax, Virginia • +1 571-544-1708

atafahmed@ieee.org | [GitHub](#) | [GitHub2](#) | [LinkedIn](#) | [Website](#)

Education

Doctor of Philosophy, Computer Science 2025-Present
George Mason University Fairfax, Virginia

Bachelor of Science, Computer Science & Engineering 2018-2023
Bangladesh University of Engineering & Technology Dhaka, Bangladesh
CGPA: 3.50 out of 4.00 (Senior Year: 3.742)

Relevant Courses: Computer Security, Computer Networks, Fault Tolerant Systems, Compiler, Machine Learning

Research Experience

Interaction and NLP Based Sentiment Analysis of Bangla Food Review in Social Media
Undergraduate Thesis [\[GitHub\]](#) [\[Paper\]](#) 2022 - 2023
Supervisor: [Dr. Sadia Shamin \(BUET\)](#)

In this study, we collected data from different Facebook pages to analyze the sentiment of social media users regarding food reviews. For this, we used reactions and comments to analyze the sentiment in two independent ways.

Devising A Low-Cost and Portable System for Remotely Monitoring Water Quality in Real-Time
Microprocessor, Microcontroller, and Embedded Systems Project [\[GitHub\]](#) [\[Final Paper\]](#) 2021
Supervisor: [Dr. A. H. M. Alam Al-Jalau \(BUET\)](#)

Based on our microcontroller project, we wrote a conference paper on our device and its capability to remotely monitor water quality as a cost-effective solution.

Projects

Online Event Management System [\[GitHub\]](#)
Software Development Seasonal Project (Group) 2022

- Online event management software for hosting events
- This project was developed following the microservice architecture
- Consisted of a user and an admin web application.
- Technology:** ExpressJS, NextJS, Django, Docker, MongoDB

C Compiler [\[GitHub\]](#)
Compiler Seasonal Project (Individual) 2021

- A custom compiler for a subset of C language
- The compiler produces assembly code from source code
- Peephole optimization is performed to reduce redundant instructions
- Technology:** Flex, Bison, C/C++, 8086 assembly

Dhaka AI 2020 Competition Website [\[GitHub\]](#)
Contractual Project 2020

- Fullstack website developed to host an AI competition
- Both B & deployed to cloud with load balancing added
- Custom cron jobs added for sending daily statistics
- Technology:** Flask, HTML, CSS, MySQL

Technical Skills

- Programming Languages** : C/C++, Python, Java, JavaScript, Go
- Development Tools** : Git, Bash, Docker, Jenkins, gdb
- Frameworks** : Flask, Django, React, NextJS, ExpressJS
- Databases** : MySQL, PostgreSQL, MongoDB
- Security Tools** : BurpSuite, Wireshark, Aircrack-ng, Ettercap, Nmap
- ML Frameworks** : TensorFlow, PyTorch, Pandas

Language Proficiency

TOEFL
Marks 110/120 October 22, 2023
Reading: 30, Listening: 28, Speaking: 28, Writing: 24

GRE
Marks 316/340 October 14, 2024
Verbal: 151, Quant: 165

Achievements

- Achieved **3rd position** in National Cyber Drill 2022 as team BUET Society [\[Link\]](#)
- Achieved **1st position** in University Cyber Drill 2022 as team BUET Society
- Achieved **6th position** in National Cyber Drill 2021 as team Knight Squad [\[Link\]](#)
- Received a Military Appreciation Coin from the US Embassy Dhaka [\[Link\]](#)

Extracurricular Activities

BUET Entrepreneurship Development Club
President May 2022 - May 2023
As president in the final year, I along with club members, organized career talks and seminars for recent graduates. For the current students, we organized workshops and meetups/sessions with industry professionals.

BUET Cyber Security Club
Founding Vice President Nov 2022 - May 2023
Along with a group of friends and juniors interested in cyber-security, I led the foundation of the first cyber-security club of BUET. After the foundation, we organized two seminars, one workshop, and an intra-university capture-the-flag competition.

CV Examples

SHAHWAT HASNAINE

+8801521444555 - shahwathasnaine@gmail.com
[linkedin.com/in/shah9](https://www.linkedin.com/in/shah9) - Problem Solving Profile

PROFESSIONAL SUMMARY

Results-driven software engineer with 3.5+ years of experience building and scaling Swift & Flutter-based applications used by 1M+ users globally with 4.8+ App Store ratings.

EXPERIENCE

Enesis Solutions Senior Software Engineer Jan 2023 - Present
 Dhaka, Bangladesh

- Architected and delivered a Flutter-based employee management system that reduced HR processing time by 40% and scaled to 20000+ users.
- Engineered performance-critical features in Swift and Kotlin, improving app launch times by 33% and reducing crash rates by 20%.
- Developed low-latency hardware integration modules for Corsair iCUE using C++/Qt, enhancing real-time device feedback and responsiveness.
- Facilitated agile communication between cross-functional teams and U.S.-based clients, ensuring 95% feature delivery within sprint deadlines.
- Mentored and coached junior developers, accelerating their onboarding and improving team delivery velocity.

Kite Games Studio Software Engineer (iOS) Aug 2021 - Jul 2022
 Dhaka, Bangladesh

- Led the full lifecycle development of *Phone Cleaner* using Swift/SwiftUI, launching in 3 months with 500K+ downloads and a 4.6+ rating.
- Designed and deployed image/audio/video optimization algorithms that decreased memory usage and processing time by 35%.
- Integrated the *Criminial Inpainting Algorithm* into *Retouch*, improving object removal accuracy and increasing user session duration by 15%.
- Collaborated closely with designers and QA teams to ship feature-complete, bug-free versions on schedule, achieving 98% test coverage.

EDUCATION

Rajshahi University of Engineering & Technology (RUET) Jan 2017 - July 2021
 B.Sc. in Electrical & Computer Engineering

SELECTED ACHIEVEMENTS

- ICPC World Finals 2022 - Honorable Mention (Profile)
- Codeforces Candidate Master - Max Rating: 2031 (Profile)
- Google Code Jam 2021 Round 2 - Top 1K (Rank: 1041)
- 9th / 2312 - ACM ICPC Dhaka Prelims 2020

TECHNICAL SKILLS

Languages	Swift, Kotlin, Dart, C++, C, Objective-C, Python
Frameworks	SwiftUI, UIKit, Flutter, Jetpack Compose, Qt
Tools	Xcode, Git, Jira, Firebase, CocoaPods, Fastlane, CI/CD (Bitrise, GitHub Actions)
Concepts	Clean Architecture (MVVM, VIPER), Async/Await, CoreData, Performance Profiling

Resume Examples

hi@kognise.dev **Lexi Mattick** kognise.dev
github.com/kognise

I'm a long-time maker and doer of things. I love problem-solving in general and gravitate toward technology as the best way to scratch that itch. As such, my skills are primarily technical, but I branch out to other areas when they're valuable. Overall, I love thinking through complex systems and solving logistical puzzles, whether human or machine.

Technologies and Languages

- Languages: JavaScript, CSS, Rust, Python, C, and some exp. with Java/Kotlin, Haskell, Ruby, PHP Go
- Technologies: Linux, Docker, Nix, React, Node.js, MongoDB, Git
- Other: System administration, UI/UX design, DevOps, technical writing, security
- Non-dev: CAD, sound design, community management, electrical engineering

Work Experience

Site Reliability Engineer **Nuavative** **Dec 2023 - Present**
 Fremont, California

- Working on the infrastructure team to improve internal systems and develop in-house software to increase team productivity and product reliability.

Software Engineer **Hack Club** **Nov 2021 - Dec 2023**
 Burlington, Vermont

- Wrote a 16,000 word open-source illustrated educational article about how computers execute code. Reached #1 on Hacker News and high on GitHub trending, 3.6k stars on GitHub, over 200k pageviews in first 30 days. oxa.link
- Member of team of 3 creating a JavaScript game engine. Designed and developed a web IDE for said game engine in Preact. Maintained C firmware for a RP2040-based hardware console which has been mailed out pro bono to almost 300 recipients. Overwrote testing. oxa.link/hackclub.com
- Developed an alternate reality game in partnership with Preact's Substack. Created a custom analytics reporting platform. Managed Linux server including a RTMP server.

Freelance and Open-Source Development **Jun 2019 - Present**

I love writing code on my own time! I've worked on 150+ personal projects of varying sizes and stacks that have collectively been seen or used by millions of people. Many are open source at github.com/kognise. I do paid contract development and security bounty work regularly as well.

Trial Software Engineer **Hedwood Research** **Dec 2022**
 Berkeley, California

- Created a visualization tool to make it easier for ML researchers to interact with our Rust and Python computational graph framework.
- Collaborated with researchers to implement library features in our Rust and Python codebase. Wrote automated tests.
- I was offered a full time position at the end of the trial period.

Software Engineer Intern **Replit** **Mar 2020 - May 2020**
 Remote

- Prototyped a mobile app for the Replit web IDE in React Native. Worked with GraphQL and Protobuf-based APIs.
- Frequently shared updates with users and iterated on feedback.

Conferences and Events

Ubuntu Summit 2023 - Invited Speaker

Resume Last Updated: December 13, 2023

Jinseo Park
 github.com/jinseo mtnvts.ga.3322 jinseo@jgmail.com

Work Experience

Google Mountain View, CA
 Software Engineer July 2022 - Current
 - Working with the Ads Serving Intelligence team.

True Shape (d.b.a. Getberry) Remote
 Software Engineering Intern Jan. 2021 - Apr. 2021
 - Fully rewrote a virtual conference platform written in React and Node.js to be more performant and robust with the help of end-to-end, integration, and load testing.
 - Implemented semantic versioning using Lerna and Conventional Commits, and integrated Sentry to facilitate error tracking and troubleshooting.

Google Remote
 Software Engineering Intern May 2020 - Aug. 2020
 - Explored improvements to the accessibility of data visualization with an aim to merge the features into Google Analytics.
 - Designed data flow and component hierarchy of the Angular app, and used lazy loading to minimize the anticipated performance impact.
 - Set up CI/CD pipelines to automate linting, unit testing, and deployment.
 - Developed data audification of line charts using the Web Audio API.

Reddit Technologies Atlanta, GA
 Software Engineering Intern Jan. 2020 - Apr. 2020
 - Maintained a talent management system written in Angular and Node.js.
 - Rewrote TypeScript interfaces in a more object-oriented way, and simplified data flow within the Angular app.

Prendsson Seoul, South Korea
 Software Engineer Feb. 2017 - Jan. 2020
 - Managed a Scrum team of five engineers to deliver multiple outsourced web services.
 - Wrote boilerplates for React and Node.js projects in TypeScript, implementing dependency injection and modularization in a monorepo.

Projects

GT Scheduler 2018
 - A scheduler that helps Georgia Tech students find the best schedule among all the possible combinations of courses.
 - Used GitHub Pages to serve a React app, and GitHub Actions to periodically run a Node.js crawler.
 - Recorded 4k+ unique visitors during the Fall 2019 registration period.

Algorithm Visualizer 2016
 - An interactive online platform that visualizes algorithms from code.
 - Wrote visualization libraries in JavaScript, C++, and Java.
 - Used AWS Lambda for running user-submitted code for the sake of security, scalability, and affordability.
 - Collaborated with 40+ developers and gained 33k+ stars on GitHub.

Summary
 Software Engineer with four years of work experience, staying up to date with the latest tech trends through open source projects and hackathons.

Education

Georgia Institute of Technology
 - Aug. 2018 - May 2021
 - BS in Computer Science
 - Concentration in Theory and Intelligence
 - Minor in Economics

National University of Singapore
 - Exchange in Fall 2019

Awards

The Home Depot Hackathon
 - 2019, First Place

Chengpu80 Fintech Product Design & Research Competition
 - 2019, Second Place

Mobile Hackathon
 - 2019, First Place

Consortium for Computing Sciences in Colleges - Midwest
 - 2017, First Place in Student Showcase

USA Computing Olympiad
 - 2015, Platinum Division

Korea Youth Science of Information Olympiad
 - 2011, First Place

Korea Olympiad Informatics
 - 2010, Silver Medal

Skills

TypeScript Expert
Java Advanced
Scala Intermediate
Python Intermediate
Haskell Novice



LinkedIn Presence: Your Professional Digital Shadow

- ▶ **Identity:** It's not just a social network; it's your digital office.
- ▶ **Headline:** Be specific (e.g., "Aspiring Software Engineer — C++ — DSA Enthusiast").
- ▶ **Content:** Share what you learn. Build in public!
- ▶ **Network:** Connect with alumni and industry leaders.
- ▶ **Opportunities:** Many jobs never reach job boards; they happen on LinkedIn.



Sell Yourself: Why are you valuable?

- ▶ **Value Proposition:** What can you do that others can't?
- ▶ **Soft Skills:** Communication, teamwork, and adaptability are just as important as coding.
- ▶ **Problem Solver Mindset:** Show that you don't just write code; you solve problems.
- ▶ **Continuous Learner:** The tech world moves fast. Show that you can keep up.
- ▶ **Portfolio:** Let your work speak for itself.



Stop "Vibe Coding"

- ▶ **The Trap:** Blindly copying from ChatGPT or Gemini or Claude.
- ▶ **The Result:** "It works, but I don't know why."
- ▶ **The Fix:** Understand every single line you write.
- ▶ AI is a tool, not a brain replacement.
- ▶ **Copilot or Slave?**



S. M. Shakir Ahsan Romeo ✓ • 1st
Part-time Software Engineer(II), Full-time Dad(I)
1mo • Edited • 🗨

Recently, I have been generating more code with AI than I used to before. Specially, the unit tests. For example, yesterday, I wrote a java class with a single method of only 3 lines. Then I told kiro to generate the unit tests. And it wrote 10 test methods for different scenarios. I went through them line by line. And thought had I written them myself, I would have written a few less.

What I am trying to tell is even though AI is writing these, I check almost everything before committing. Because the author of the commit is me at the end of the day and when something breaks, nobody will tell "AI broke this", but "Romeo broke this".

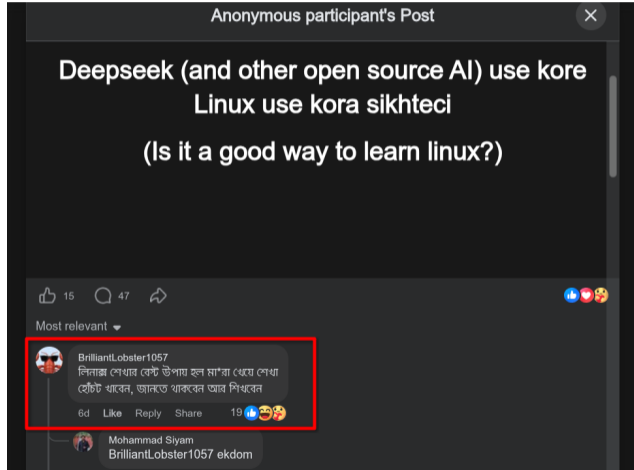
Honestly, I have a tendency of owning the code. In principal, I am still an "organic" coder.

What do you think about yourself?





Best way to learn...





Do Something Meaningful: Make it Count

- ▶ **Personal Projects:** Solve a problem you personally face.
- ▶ **Open Source:** Contribute to tools you use.
- ▶ **Teaching:** The best way to learn is to explain to others.
- ▶ **Networking:** Connect with seniors and industry professionals.

The Warning

- ▶ Time is your only non-renewable resource.
- ▶ Consistency beats intensity. 1 hour every day > 10 hours once a month.
- ▶ Avoid Tutorial Hell.
- ▶ **Otherwise...** you'll struggle when the real world hits.

2024 CrowdStrike-related IT outages



Multiple blue screens of death caused by a faulty software update on baggage carousels at LaGuardia Airport, New York City

Figure: Small mistakes, Huge impact.



Thank You!

Any Questions?