

# Ankush Pathak

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## EDUCATION

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- **Indiana University, Bloomington, IN, US** May 2023  
*Master of Science in Computer Science*  
GPA: 4.0/4.0  
Courses: *Engineering Cloud Computing(A+), Operating Systems(A+), Computer Networks(A+), Elements of AI(A+), Software Engineering(A+), Applied Algorithms & Competitive Programming.*
- **Pimpri Chinchwad College of Engineering (University of Pune), India** May 2018  
*Bachelor of Engineering in Computer Engineering*  
GPA: 79.4%

## SKILLS SUMMARY

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- **Programming Languages:** Python, C++, Java, JavaScript, Go, Bash
- **Platforms:** Linux, Android, Ethereum, Django
- **Tools:** Git, Kubernetes, Docker

## EXPERIENCE

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- **Cloud Engineering Intern, TIBCO, Bloomington, IN** Aug 2022 - Dec 2022
  - **AWS Cost Report:** Worked on developing an AWS Lambda module in Rust to facilitate aggregation of AWS billing details for business units and reporting them according to user specified cost categories.
- **Production Engineering Intern, Meta (formerly Facebook), Boston, MA** May 2022 - Aug 2022
  - **RPC Framework Migration:**
    - Migrated a **Python**-based TLS certificate management service from a legacy Python implementation of the Thrift (a RPC protocol) framework to a modern Cython wrapped C++ implementation of the same framework.
    - The migration involved adopting a synchronous codebase to Python async style code.
    - The **async** style adoption led to upto 17% improvement in request processing latency.
  - **Code Timing Module:** Implemented a module for the same service to time arbitrary blocks of code based on a configured sampling rate.
- **Lead Software Engineer, Persistent Systems, Pune, India** Jul 2018 - Aug 2021
  - **Email Encryption Product:**
    - Refactored a legacy on-premise product codebase to make it deployable on modern cloud platforms.
    - Designed, implemented, and deployed a **Go** (designed at Google) module on **Amazon Web Services Lambda** to aggregate logs.
    - Wrote over 100 **unit test cases** for two microservices improving their code coverage from 40% to 90%.
    - Implemented REST APIs on **Django** to facilitate user authentication and email encryption.
    - Worked on pushing data received via APIs to **Redis** store.
    - Designed and built an integration and deployment pipeline on **Jenkins** to build **Docker** images and deploy them on a **Kubernetes** cluster hosted locally or on Amazon Web Services EKS.
  - **Email Marketing Product:**
    - Optimized core business logic to improve product performance for a use-case from 1 to 1.7 million records processed per hour. The effort involved arduous **C++ debugging** of a multi-process system.
    - Implemented an on-demand shutdown for a **Java** multi-threaded data import process.
    - Resolved complex issues reported by end-users on production systems through systematic investigations.

## ACADEMIC PROJECTS

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YouTube hosted demos or reports for most of the following projects can be viewed here: <https://bit.ly/38zYz57>

- **Distributed Map-Reduce:** Implemented a distributed map-reduce system in C++ that can accomplish arbitrary user defined map-reduce jobs. Code hosted at <https://bit.ly/ank-mr>, includes a PDF report (Nov '22)
- **Open Loop Wearable-based Payment System:** Implemented transaction processing system on top of Django to enforce user-created policies for an RFID-based payment system. (Mar '19)
- **Design and Implementation of a Secure and Robust Voting Machine using Blockchain:** Built a service deployed on Pi Zero to authenticate users using fingerprint and perform blockchain operations using Ethereum Web3 module. (Apr '18)
- **App for Identifying Plants and Reporting Locations:** Implemented Android Java packages for capturing images using the phone camera, pushing to cloud storage, caching images from cloud storage, and loading them for feature extraction by computer vision algorithms. (Apr '17)

## STUDENT INVOLVEMENT

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- Qualified for and participated in Association for Computing Machinery (ACM) ICPC Coding Contest Regionals in Nov 2016.
- Published articles (1,2) in ACM XRDS. One of which has also been featured on ACM Selects.