

# Abdul-Karim K. Rai

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Portfolio: [aykae.com/projects](https://aykae.com/projects) | GitHub: [aykae](https://github.com/aykae) | LinkedIn: [A.K. Rai](https://www.linkedin.com/in/A.K.Rai) | Twitter: [@aykae\\_r](https://twitter.com/aykae_r)

## EDUCATION

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### UNIVERSITY OF PENNSYLVANIA

M.S.E. in Computer Graphics and Game Technology

Relevant Coursework: Cryptography, Engineering Entrepreneurship, Natural Language Processing

Philadelphia, PA

Aug 2022 - May 2024

### THE PENNSYLVANIA STATE UNIVERSITY

B.S. in Computer Science

GPA: 3.830/4.000; Honors: Cum Laude

Relevant Coursework: Systems Programming, Operating Systems, Machine Learning & AI, Database Management

State College, PA

Aug 2019 - May 2022

## EXPERIENCE

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### FRANKLIN DAO

Software Engineer, Blockchain

Philadelphia, PA

Sep 2023 – Present

- Building AMM arbitrage bot w/ **Solidity**, **Typescript**, **Hardhat** to capitalize on DEX markets & generate **FDAO** profits
- Tracking **5,000+ Uniswap V2/V3** swap pairs w/ **Typescript SDK**, streaming mempool txns w/ **Alchemy RPC Node** for backrunning opportunities, streaming **Flashbots MEV-Share** orderflow for frontrun-protected txn submission
- Designed parametric DeFi insurance protocol using **Solidity** and **Chainlink functions** to enable permissionless claim payouts; awarded **Best DeFi Project**, **Best Use of Chainlink Functions** at [Penn Blockchain Hackathon 2024](#)

### APPIAN CORPORATION

Software Engineer Intern, Site Reliability

McLean, VA

Jun 2021 – Aug 2021

- Worked on site engine resilience, using **Java**, **Kafka** & **Zookeeper** to enable reliable distributed event streaming for **200+ customer sites**, addressed several bugs and preventative measures in existing codebase
- Ported Grafana dashboards using **Typescript** & **PromQL** to display **Prometheus** times series' for **50+ Kubernetes** customer sites, facilitating monitoring of reliability metrics such as memory usage & automatic engine restart count
- Optimized site scaling architecture using engine-specific (e.g. content, analytics, etc.) **Kubernetes** pods rather than all engines per pod, enabling horizontal scaling & **reducing idle engine initialization by 97%**
- Pushed several hot fixes to production site engine w/ **< 1 hr turnaround**, preventing downtime on **200+ live customer sites**
- Prototyped built-in image search + effects API for low-code app builder using **OpenCV** & **Django**, won **1st place** intern hackathon, proposed feature added to app builder product roadmap

### TRYBER

Co-Founder, CTO

Hasbrouck Heights, NJ

Jun 2020 – Aug 2022

- Owned all aspects of technical design & development of flagship app, **EasyA (7.5k+ installs)**, i.e., iOS, backend, DevOps
- Developed content writing web interface in **Django** allowing my CEO to write **800+ course topic reviews and quiz questions** in **LaTeX**, directly populated into our **SQLite** content database without my technical oversight
- Designed iOS frontend w/ **Photoshop** and implemented using **Swift** & **UIKit** providing an engaging and intuitive UX
- Networked iOS app to **Django REST Framework** content API w/ **Alamofire**, HTTP wrapper for requesting text & image
- Deployed backend site to **AWS EC2** instances for ease of scaling and reliability, **S3 buckets** for high-availability image storage for when iOS client app downloads review content

### ABC FITNESS

Software Engineer Intern, Automation

Dallas, TX

Jun 2020 – Aug 2020

- Automated gym membership freeze mechanism w/ **Python NLTK** sentiment classifier to drastically reduce manual employee review during COVID-19 **influx of 100,000+ freeze requests**
- Wrapped membership freeze mechanism w/ **Django Rest Framework** API allowing integration of ML classifier into existing **UIPath** automation pipeline

## SKILLS + INVOLVEMENT

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**Technical Skills:** Python, Django, DRF, Java, Kafka, JavaScript, TypeScript, Solidity, Swift, C++, Git, AWS, CircuitPython

**Awards:** Penn Blockchain Hackathon 2024 (**Best Defi Project**), Appian 2021 Intern Hackathon (**Winner**)

**Orgs:** Developer for [FranklinDAO](#); Contributing Writer for [Fenjan Magazine](#); Social Media Editor for [Onward State](#)