Mikhael Zacharias Thomas

(215)-252-0923 | mikth@seas.upenn.edu | linkedin.com/in/mikhaelthomas | github.com/mikth3372
Philadelphia, PA

Education

University of Pennsylvania **May 2025**
Master of Science - Computer Science (MCIT) | Coursework: Distributed Systems, Big Data *GPA: 4.00/4.00*
AI Innovation Award Recipient at Penn Hackathon 2024

Netaji Subhas Institute of Technology **June 2021**
Bachelor of Engineering - Mechanical Engineering | Merit Scholarship Recipient for Academic Excellence *GPA: 3.58/4.00*

Technical Skills

Languages/Frameworks: Java, Python, C++, JavaScript, React, NodeJs, Django, Golang
Databases/Tools: MySQL, ElasticSearch, MongoDB, TensorFlow, AWS, Docker, Kubernetes, Apache Kafka, gRPC

Work Experience

Computational Social Listening Lab **June 2024 - August 2024**
Software Developer *Philadelphia, PA*

- Led the development of a voice bot/chatbot (under **Professor Lyle Ungar**) aimed at teaching conversational English to students, initially built with **Flask** and **MongoDB**
- Enhanced user experience and reduced development time for new features by **20%**, enabling faster deployment of functionalities, by transitioning to a **React** frontend and upgrading to a **Django** backend
- Enriched student learning by achieving a **25%** improvement in response accuracy and relevancy through the application of **Retrieval-Augmented Generation (RAG)** to significantly enhance the bot's knowledge base
- Optimized content delivery, leading to a significant **35%** reduction in load times, by using **Amazon S3** for frontend hosting and **CloudFront** as a CDN for efficient distribution of static assets
- Designed and built a highly scalable backend system, capable of supporting over **500 users**, by deploying environments on **AWS Elastic Beanstalk**, thereby simplifying application management and updates
- Achieved fluid and responsive communication, as measured by a **70%** reduction in latency, by implementing **WebSockets** for real-time chatting functionality, enhancing the platform's interactive capabilities
- Executed trial runs in 4 schools across India and the US, gathering extensive user feedback from **50+** students

Xebia **July 2021 – June 2023**
Software Developer *New Delhi, India*

- Streamlined asset management processes, reducing deployment delays for new asset categories by **80%**, by creating a flexible framework using **SQL** and **Java Spring Boot** to automate data handling without the need for separate APIs
- Increased user productivity by **40%** by building a recent and frequent search feature, enabling customers to quickly access relevant information, thereby streamlining their workflow and enhancing overall efficiency
- Achieved **100%** consistent data validation by resolving a critical **race condition** issue between development and UAT environments, implementing separate databases for each to prevent conflicts
- Reduced load times by **25%** and improved information accuracy for the bank's staff by revamping data retrieval using **SQL indexing**, **Elasticsearch pagination** and developing data filters
- Refined data handling processes, increasing data retrieval and management efficiency by **25%** through the use of Spring Data JPA for sophisticated object-relational mapping and streamlined data management

National Institute of Advanced Studies **June 2019 - July 2019**
Summer Research Intern *Bangalore, India*

- Conducted a literature review of 5+ research papers to analyze their applications in image processing
- Explored the integration of Chaos Theory with Convolutional Neural Networks (CNNs) using Tensorflow

Projects & Leadership Experience

Penn Cloud | C++, gRPC **November 2024 - Present**

- Designed and implemented a distributed cloud platform inspired by Google's BigTable model, providing scalable and reliable services for users to upload, manage, and store files while also supporting email functionalities
- Developed robust crash recovery mechanisms using periodic checkpointing and server synchronization
- Ensured fault tolerance and data consistency through primary replication with sequential consistency

Serenity - Video Conferencing with Empathy | React, Flask **April 2024**

- Developed a full stack application integrating Zoom video conferencing with real-time emotion analysis and feedback generation using Hume and OpenAI APIs
- Awarded the Best .Tech Domain Name at the 2024 DragonHacks Hackathon

IEEE NSIT, Student Branch | General Secretary **July 2019 – April 2020**

- Organized the NSIT Hackathon with more than 700 registrations from all over the country
- Recipient of the **IEEE WIE Outstanding Student Volunteer Award** 2019-2020