

Protick Bhowmick

Blacksburg, Virginia

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Technical skills

- **Languages:** Python, Java, C++, C, JavaScript, HTML, CSS, SQL
- **Frameworks:** Django, Apache Spark, Apache Kafka, Node.js, Springboot
- **Database:** MySQL, PostgreSQL, MongoDB, Redis
- **Technologies/Platforms:** Docker, Selenium, RabbitMQ, Git, Jira, AWS, Azure
- **Tools/Concepts:** Microservices, Agile/Scrum, Data Structures and Algorithms, Software Architecture

Experience

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|---|----------------------------------|------------------------|
| Summer Intern | Cisco, California | May 2023 - August 2023 |
| <ul style="list-style-type: none">• Developed real-time network outage detection framework in collaboration with the Thousandeyes team using Python, Django, Apache Spark and Apache Kafka. Currently it seamlessly delivers outage alerts with root cause analysis to a diverse clientele, including 180 Fortune 500 companies.• Designed an algorithm for detecting DNS failures and implemented in the existing pipeline that eliminated prior misattribution to VPNs and Gateways. | | |
| Graduate Research Assistant | Virginia Tech, Virginia | Jan 2022 - Dec 2023 |
| <ul style="list-style-type: none">• Performed a longitudinal measurement analysis for 24 months using Python, Node.js and Apache Spark to establish that 13% of Certificate Authorities have unreliable and insecure OCSP infrastructure.• Developed a novel heuristic to measure the global distribution of edge servers of popular CDNs using Python and Brightdata proxy network.• Improved the performance of Firefox browser's TLS handshake mechanism by fetching OCSP information over DNS using Python, C++ and Selenium. This resulted in faster page load for 31% of the top 1 Million Alexa domains. | | |
| Software Engineer | Priyo Systems, Bangladesh | Jan 2020 - Dec 2020 |
| <ul style="list-style-type: none">• Developed and designed the content ingestion engine for Priyo, the largest news aggregator platform in Bangladesh using Python, Django REST framework, PostgreSQL, MongoDB and Celery.• Created location-based info-graphic map using Python, Django and React to visualize the spread of COVID-19 in Bangladesh, used and registered by over 500,000 users throughout the pandemic.• Implemented news recommendation system using collaborative filtering techniques in Apache Spark increasing 7% average time spent on site. | | |
| Software Engineer | Ipay Systems, Bangladesh | Nov 2018 - Dec 2019 |
| <ul style="list-style-type: none">• Designed and developed secure payment modules in microservice architecture using industry-standard security practices.• Led the development of a centralized Bank Gateway Module that enabled instant money transfer within 12 commercial Banks in Bangladesh through RESTful APIs secured by JWT token-based authentication.• Designed and implemented log management framework using Elastic stack to improve visibility for the engineers. | | |
| Software Engineering Intern | Reve Systems, Bangladesh | Apr 2018 - Aug 2018 |
| <ul style="list-style-type: none">• Collaborated in developing the first National Birth Registration Information System (BRIS) in Bangladesh using Java, Spring Boot and PostgreSQL. | | |

Education

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| Masters in Computer Science | Expected graduation: Dec 2023 |
| • Virginia Tech , Blacksburg, Virginia, USA | |

Selected Publications

- **Measuring TTL Violation of DNS Resolvers at scale**, Authors: **Protick Bhowmick**, Mohammad Ishtiaq Ashiq Khan, Casey Deccio, and Taejoong Chung (Published in Passive and Active Measurement Conference 2023)
- **A Comparative Analysis of Certificate Pinning in Android and iOS**, Authors: Amogh Pradeep, Muhammad Talha Paracha, **Protick Bhowmick**, Ali Davanian, Abbas Razaghpanah, Taejoong Chung, Martina Lindorfer, Narseo Vallina-Rodriguez, Dave Levin, David Choffnes (Published in Internet Measurement Conference 2022)