

Søknad

254148 - PhD Candidate in Computer Architecture (Ref. 2020/6721)

Lissiyas Antony
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PERSONAL DETAILS

Date of birth	20.08.1996
Gender	Male
Citizenship	India
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Current profession	nill

APPLICATION

Statement of Purpose

As a kid born in the 90s, I grew up when the tech world was booming. I could spend hours playing video games and was fascinated by gadgets. Computers weren't an exception. This was carried forward to my school days where I always ended up being in the top three in my Information technology class. I vividly remember longing for the practical sessions in school to use a computer like my family couldn't afford one back then. I didn't have much trouble deciding what to pursue after school because it was obvious I did well in learning what I loved and I loved computers.

With a soaring ambition to learn the Subject, I joined Younus College of Engineering Thalachira, Kottarakara Kollam, affiliated with Kerala University, to pursue my undergraduate degree majoring in Computer science and Engineering. During my 4 years there, I was introduced to a wide variety of courses like Engineering Mathematics, Computer Organization and Design, Data Structures and Algorithms which helped me to obtain analytical and problem-solving skills. Whereas subjects like Software engineering and project management, Design and analysis of Algorithms, etc helped me understand the planning, implementation, and controlling of a software project. My academic project was titled Digital Documentation which dealt with a platform helping online verification of real estate documents which would make purchases a lot easier and help reduce scams.

After my graduation, I joined the Rajiv Gandhi Institute of Technology, One of the premier public colleges in my region to Pursue my Postgraduate degree. It helped me dive deeper into topics like Advanced Data Structures and Algorithms, Computational Intelligence, Modern Computer Networks, High Performance Computer Architecture, Computer Security and Applied Cryptography,, etc. I did a mini project titled "Fine-Grained Two-Factor Protection Mechanism for Data Sharing in Cloud Storage", an innovative data protection mechanism for cloud storage. The password a.k.a cryptographic key is protected by two-factor authentication and unless both are satisfied, data cannot be accessed. The cryptographic key can be revoked efficiently by integrating the proxy re-encryption and key separation techniques. Data is protected in a fine-grained way by adopting the attribute-based encryption technique. I had done my Master's thesis project in Cryptography. The thesis was titled 'Securing Surveillance Data Using Incremental Cryptography'. Given a cryptographic operation and data to be operated upon, standard schemes compute the cryptographic operation from scratch. Incremental schemes instead attempt to use a previously computed result, if available, on a previous version of the image, along with a list of changes performed to obtain the later image. The goal was to yield faster computation which was achieved successfully at the end of the project and the thesis was presented during the 13th international conference on soft computing and pattern recognition held on Dec 15 -17 by Machine Intelligence Research Labs (MIR Labs), USA and was published on part of book series 'Lecture Notes in Networks and Systems', Springer. After completing my Post Graduation, I joined a SaaS-based company as a Business Analyst, where I had the exciting opportunity to dive deep into the world of E-commerce analytics. In this role, I meticulously analyzed extensive E-commerce data to derive actionable insights that drive business growth and efficiency.

My relentless drive to explore new frontiers led me to join the esteemed Indian Institute of Technology Guwahati as a 'Junior Research Fellow.'. I have worked on the project titled "Enhancing Security Features of On-Chip Networks in Modern Multi-core Processors," which is funded by the SERB, Department of Science & Technology, Govt of India under the Guidance of Dr. John Jose. Within this role, I am focused on the integration of cryptographic primitives, such as Encryption and Message Authentication Codes, into incremental cryptography. Since the inherent characteristics of incremental encryption reveal the number of differences between consecutive packets, we propose to extend this idea to multimedia encryption and its possible integration in NoC. If an application is doing an image processing operation on an image stored in memory, accessing pixel data stored in consecutive memory locations or pixel information in the same block, we make use of incremental encryption there to explore performance gain in terms of encryption time. In addition to my work on NoC security, I have also conducted research on the topic of "Exploring Trustable Paths in Network-on-Chip for Low-Slack Packets." we explore an exclusive routing method for low-slack packets. For that, we propose a trust-based routing (TBR) mechanism that builds trust dynamically and opportunistically selects downstream routers to forward packets. This low-slack packet bypasses the HT routers and reaches its destination without being affected by delay attacks. The paper was accepted for presentation at the ISOCC 2023 conference in South Korea. Additionally, during my tenure as a JRF, I have also served as a teaching assistant for the course on Multi-core Computer architecture, and I enthusiastically volunteered for the IEEE Guwahati subsection conference (IEEE Gcon 2023) held at IIT Guwahati and also participated in the 8th India School on Internet Governance(inSIG2023 held at IIT Guwahati).

My aspiration for the future revolves around becoming an expert in Multi-core Computer architecture more focusing towards memory system, Quality of Service etc. This Ph.D. program at NTNU is an instrumental step toward achieving this goal. It will provide me with the knowledge, research experience, and mentorship required to excel in the domain. My enthusiasm for pursuing a Ph.D. at NTNU stems from its distinct offerings. The institution boasts a wealth of resources, a roster of globally recognized faculty members, and a richly diverse community of researchers. This combination fosters an ideal setting for pioneering research and personal academic growth. Since the project will investigate allocating expensive resources only to performance critical instructions aligns perfectly with my interests. The potential for innovation and real-world impact in this area is thrilling, and I am enthusiastic about contributing to its development. I have no doubts about my decision to undertake higher studies at NTNU, aiming to forge a career in research and academia. My genuine passion for this field, coupled with my academic and professional expertise, leaves me excited to contribute significantly to the project. Additionally, I am keen on continuing my professional growth in this dynamic and evolving domain.

Thank you for your consideration,
Lissiyas Antony

EDUCATION / ACADEMIC QUALIFICATIONS

2019-08 - 2021-08 Rajiv Gandhi Institute Of Technology, Kottayam, India - Degree: Master Master Of Technology Faculty / Department: Computer Science And Engineering Grade: 8.33/10

2016-08 - 2018-08 University of Kerala , India - Degree: Bachelor Bachelor Of Technology Faculty / Department: Computer Science And Engineering Grade: 63.02%

WORK EXPERIENCE

2023-02 - 2023-12 Indian Institute of Technology Guwahati , India Job: Junior Research Fellow Institution abroad

2022-01 - 2023-01 Dayspring Technologies, Bangalore , India Job: Business Analyst Institution abroad

PROJECT / RESEARCH EXPERIENCE

2023-02 - 2023-12 Project: Enhancing Security Features of On-Chip Networks in Modern Multicore Processors. Scope / workload: Junior Reseach Fellow Funding source: CRG Scheme, SERB, Department of Science & Technology, Govt of India.

PUBLICATIONS / SCIENTIFIC PRODUCTIONS

2022-02 Type: Conference Title: Securing Surveillance Data Using Incremental Cryptography Publishing: springer Degree: Bachelor Co-author(s): N. V. Sobhana

Type: Conference Title: Exploring Trustable Paths in Network-on-Chip for Low-Slack Packets Publishing: 20th International SoC Conference (ISOCC 2023) Degree: Other Co-author(s): Syam Sankar, Ruchika Gupta , John Jose 1 , and Sukumar Nandi

LANGUAGES

English Verbal skills: Fluent Written skills: Fluent

REFERENCES

Dr Sobhana N V Professor Location: Rajiv Gandhi Institute of Technology, Kottayam Phone: 9496123130 sobhana@rit.ac.in

Dr. JOHN JOSE Associate Professor Location: Department of Computer Science & Engineering Indian Institute of Technology Guwahati Guwahati Phone: +919048665842 johnjose@iitg.ac.in

Vethamoorthy HR Manager Location: Dayspring Technologies Phone: +91 9902738036 vethamoorthy@dayspringlabs.com

ATTACHMENT

Bachelors degree

Master degree

Btech percentage certificate

Masters marklist

Resume-5

experience certificate

publications