VICTOR YOUDOM KEMMOE

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Marietta, Georgia, USA

EDUCATION

Master of Science in Computer Science July 2020
Kennesaw State University, Georgia, USA
Thesis: *Leveraging Smart Contracts for Asynchronous Group Key Agreement in Internet of Things*
Advisor: Junggab Son
GPA: 3.88/4.0

Bachelor of Science in Computer Science December 2018
Kennesaw State University, Georgia, USA
GPA: 3.79/4.0

RESEARCH INTERESTS

Cryptography, Blockchain, Cybersecurity

EXPERIENCE

Research Assistant October 2020 - Present
Kennesaw State University, Georgia, USA

- Participating in the development of a blockchain-based authentication scheme for vehicular ad hoc networks
- Working on the amelioration of an asynchronous group key agreement protocol for IoTs

Graduate Research Assistant January 2019 - July 2020
Kennesaw State University, Georgia, USA

- Developed a novel asynchronous group key agreement protocol for IoTs based on smart contracts. The protocol uses a smart contract to outsource part of the computations and supports post-compromise security. Simulated the proposed scheme using Ethereum blockchain platform. *Work published in IEEE SMC 2020*
- Analyzed the current state-of-the-art technologies using smart contracts and made propositions on future directions. *Work published in IEEE Access, vol. 8, 2020*
- Participated in the development of an anomaly detection scheme – on a computer network – using deep learning. *Work published in ICCCN 2020*

Tutor August 2018 - December 2018
SMART Center - Kennesaw State University, Georgia, USA

- Tutored fellow undergraduate students in Mathematics, Physics, and Chemistry

Software Engineer Intern July 2017 - August 2017
ITS Cameroon, Yaoundé, Cameroon

- Implemented Home, About, and Product sections of the company's website. Used UIKit as CSS framework
- Implemented a cross-platform (Windows-Linux) file server with Samba

PUBLICATIONS

Conference papers:

Victor Youdom Kemmoe, Yongseok Kwon, Seunghyeon Shin, Rasheed Hussain, Sunghyun Cho, and Junggab Son, **Leveraging Smart Contracts for Asynchronous Group Key Agreement in Internet of Things**, IEEE SMC 2020, pages 1-6, October, 2020. Link: https://ieeexplore.ieee.org/document/9282954

Daniel Y. Karasek, Jeehyeong Kim, *Victor Youdom Kemmoe*, Md Zakirul Alam Bhuiyan, Sunghyun Cho, and Junggab Son, **SuperB: Superior Behavior-based Anomaly Detection Defining Authorized Users' Traffic Patterns**, IEEE ICCCN 2020, pages 1-9, August, 2020. Link: https://ieeexplore.ieee.org/document/9209657

Journal papers:

William Stone, Daeyoung Kim, *Victor Youdom Kemmoe*, Mingon Kang, and Junggab Son, **Rethinking the Weakness of Stream Ciphers and Its Application to Encrypted Malware Detection**, IEEE Access, Vol.8, pages 191602-191616, 2020. Link: https://ieeexplore.ieee.org/document/9222070

Victor Youdom Kemmoe, William Stone, Jeehyeong Kim, Daeyoung Kim, Junggab Son, **Recent Advances in Smart Contracts: A Technical Overview and State of the Art**, IEEE Access, Vol.8, pages 117782 - 117801, 2020. Link: https://ieeexplore.ieee.org/document/9125932

AWARDS AND HONORS

- 1^{st} **(Fall 2019) and** 2^{nd} **(Spring 2020) place Graduate Research Project at the CCSE (College of Computing and Software Engineering) Computing Showcase day**, Kennesaw State University
- 2^{nd} **place winner CCSE Hackathon [team of 3]**, Fall 2019, Kennesaw State University
- **Outstanding Undergraduate Student in Computer Science**, December 2018, Kennesaw State University

SERVICES

- Conference reviewer: WASA 2019, COCOON 2019
- **Senior member of the BYTES (Body of Young Technologists, Engineers, and Scientists) club**,
  PKFokam Institute of Excellence, Yaoundé, Cameroon, 2017
  I mentored freshman and sophomore students in Computer Science class projects

SELECTED PROJECTS

Complete list available on my github page: https://github.com/VicXekro

N-Body problem: Program that leverages MPI and OpenMP to solve the N-Body problem. I compared my solution with a serial implementation.

- Improved the run time by 62% on average for 5000 to 10000 entities.
- Tools used: C++, MPI, OpenMP

BookStore: A web application to sell books. I augmented the application with the following security measures:

- Prevented SQL injection attacks by using Prepared Statement
- Prevented Cross-Site Scripting attacks by using Regular Expression
- Prevented Cross-Site Request attacks Forgery by using JSP session
- Tools used: JavaEE, MySQL, Apache TomCat server

Digital Image Code: An image processing application. The project includes Filters (Robert, Sobel, Prewitt, Krish), Masks, Morphologies, Textures.

- Added voice command controls for the activation of some features by using Sphinx Library
- Nominated best project of the class (out of 4)
- Tools used: Java, JavaFx, Sphinx Library

TECHNICAL SKILLS

- **General**: (Proficient) C++, Java, Python, SQL, Linux, Git, LaTeX. (Familiar) Rust, MATLAB
- **Framework**: (Proficient) OpenMP, MPI. (Familiar) CUDA
- **Blockchain**: (Familiar) Ethereum, EOSIO

LANGUAGES

English (Proficient), French (Native)