

# Yasas Seneviratne

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## SKILLS

- **Programming Languages:** C/C++, Python, Java
  - **Hardware Descriptive Languages:** Verilog, SystemVerilog, VHDL
  - **Compilers:** LLVM
  - **Operating Systems:** Ubuntu kernel modification for hardware support
  - **ISAs Associated:** MIPS, x86, RISC-V, ARM
  - **Computer Architecture Tools:** gem5, PyMTL, zsim
  - **Commercial Software:** Synopsys SpyGlass, DC Ultra, IC Compiler, Verdi, VCS, Vivado, Vivado HLS, ISE, Quartus 2, Intel Vtune
  - **Open-source tools:** Verilator
  - **Hands-on FPGAs used:** Alveo SN1000 SmartNIC, VCU118, VC707.
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## EDUCATION

- **Ph.D. Computer Engineering**  
Department of Computer Engineering  
University of Virginia (UVA)  
Advisors | Prof. Kevin Skadron & Prof. Samira Khan  
Area of Expertise | Computer Architecture  
Aug 2019 - Present  
Expected Completion Aug 2025
  - **B.Sc. Honors Degree in Electronic & Telecommunication Engineering**  
Department of Electronic Telecommunication Engineering (ENTC)  
University of Moratuwa (UOM) Sri Lanka  
Thesis | RISC-V base ISA processor design and implementation  
Mar 2013 - Apr 2017
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## EXPERIENCE

- **Google Research | External Collaborator** Jun 2021 - Sep 2022
    - Hardware design with Google Research Learn to Design Accelerator Team
  - **Synopsys | Research and Development Engineer** Apr 2017 - Jun 2019
    - Hardware accelerator design for Synopsys VCS (Verilog Compiler Simulator)
  - **Nanyang Technological University | Research Intern** Oct 2015 - Apr 2016
    - Hardware and Embedded Systems Lab (HESL)
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## PUBLICATIONS

- [P3] Yao Hsiao, Yasas Seneviratne, Tommy Tracy, Kevin Skadron, Caroline Trippel. "Design for Hardware Memory Model Verification", PLARCH, 2023.
- [P2] Yasas Seneviratne, Korakit Seemakhupt, Sihang Liu, and Samira Khan, "NearPM: A Near-memory Processing Prototype for Storage-class Workloads", EuroSys, 2023.
- [P1] Korakit Seemakhupt, Sihang Liu, Yasas Seneviratne, Muhammad Shahbaz, and Samira Khan. "PMNet: In-Network Data Persistence", ISCA, 2021.

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## OTHER SELECTED PROJECTS

- **Design and implementation of a soft processor based on RISC-V ISA.** Pipeline design, test platform design and implementation in ZedBoard Zynq-7000 ARM/FPGA SoC Development Board by Digilent. (*Four member team Semester 7-8 ENTC, UOM. 2016-2017*).
- **Design and implementation of an architecture for an embedded neural net accelerator based on Hopfield nets.** Matlab simulation of the functionality, RTL simulation of the architecture in Verilog. (*two member team, ENTC, UOM. 2016-2017*)
- **Design, verification, and simulation of a hardware bus supporting 2 Masters & 3 slaves.** Design and simulation of Arbiter and Address decoder. (*Four member team Semester 8 ENTC, UOM. 2016-2017*).
- **Design and implementation of an accelerator architecture for a real-time traffic density estimator.** C simulation of the functionality, RTL simulation of the architecture in Verilog. Target platform: Virtex-7 FPGA VC707 Evaluation Kit by Xilinx. (*Individual, NTU, SCE, HESL. 2015-2016*)
- **Design, simulation and implementation of a JPEG 2000 decoder.** RTL simulation of the architecture in Verilog and implementation on Atlys Spartan-6 FPGA Trainer Board by Digilent. (*Four member team Semester 5 ENTC, UOM. 2015*).
- **Designed and implementation of a 16 operand processor using Verilog HDL.** Implemented on teras1C DE0-Nano development and education board. (*Individual Semester 5 ENTC, UOM. 2015*).

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## ACADEMIC ACHIEVEMENTS, SCHOLARSHIPS & HONORS

- Graduated with **second class upper division** honors from University of Moratuwa, Sri Lanka, 2017.
- Dean's listed in semester 2 (2013) and semester 3 (2013) for academic achievements in the department of Electronic and Telecommunication Engineering University of Moratuwa.
- Received "Pranama" scholarship for being one of the best students among Sri Lanka Insurance policyholders for General Certificate of Education (GCE) Advanced Level (A-level) examination 2011.
- Received "EDCS (Education Employees Co-operative Thrift & Credit Society)" scholarship for achievement in General Certificate of Education (GCE) Advanced Level (A-level) examination 2011.
- Ranked **3<sup>rd</sup> in the district 121<sup>st</sup> in Sri Lanka (top 0.5% amongst approximately 30,000 candidates)** in the General Certificate of Education (GCE) Advanced Level (A-level) examination in the Physical Science Stream (Mathematics, Chemistry, Physics) conducted by the Department of Examinations of the Ministry of Education Sri Lanka, 2011.
- Received "Pranama" scholarship for being one of the best students among Sri Lanka Insurance policyholders for General Certificate of Education (GCE) Ordinary Level (O-level) examination 2008.

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## TEACHING EXPERIENCE

### ■ University of Virginia | Graduate Teaching Assistant

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|------------------------------------------|-------------|
| ■ CS 6354 Graduate Computer Architecture | 2021 Spring |
| ■ CS 3330 Computer Architecture          | 2020 Fall   |
| ■ CS 3330 Computer Architecture          | 2020 Spring |
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## VOLUNTEER ACTIVITIES

- **Artifact Reviewer:**  
54th IEEE/ACM International Symposium on Microarchitecture (MICRO 2021)
  - **Clubs and Societies:**  
Rotaract Club of University of Moratuwa (2013 – 2017), E-Club University of Moratuwa (2013 – 2017).
  - **Leadership:**  
Chairperson Gaming Fest computer gaming competition at University of Moratuwa, (2015).
  - **Community Services:**  
**E-Care 2017:** Helping to build and repair infrastructure the under develop school Banagoda Vidyalaya ,Ratnapura.  
**Inspirer 2014:** English improving workshops conducted for two days at Badulla for Ordinary Level Students.
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## EXTRA-CURRICULAR ACTIVITIES

- Participated in events “Abina 2014/2015”, “Sanda Midula 2015” organized by ENTC, “Hela Kam Kala 2012” as a rhythm guitarist.
- Participated in the Sri Lanka Robotics challenge (SLRC) 2014.
- Participated in the **Inter School All-Island Hockey Tournament 2007** Representing the under 16 Hockey team of Central college Anuradhapura.
- Participated in representing Mahinda house in the annual Sports meets of Central College Anuradhapura.
  - Under 17 (2011): Cricket, Hockey
  - Under 15 (2009): Cricket, Hockey
  - Under 13 (2007): Cricket, Football