Christopher Kniss

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EDUCATION

Ph.D. in Electrical Engineering (Direct Ph.D. Program) **Fall 2025 – Present**
University of Massachusetts Amherst *Amherst, MA*
- Advisor: Dr. Rod Kim
- Research Assistantship

B.E. in Computer Engineering (with Highest Honors) **Completed May 2025**
Stevens Institute of Technology *Hoboken, NJ*
- Concentration: Electronics & Embedded Systems
- Minor: Physics
- Cumulative GPA: 3.959

AWARDS & HONORS

- **Dean's List** — Stevens Institute of Technology
- **Edwin A. Stevens Scholarship** — Stevens Institute of Technology
- **Provost's Office Undergraduate Research Fund** — Stevens Institute of Technology

PUBLICATIONS

C. Kniss, A. Sharma, R. Phon, G. Shimonov, E. Socher, P. R. Shrestha, K. Ramu, J. P. Campbell, A. Pourvali Kakhki, R. Al Hadi, and R. Kim, "Temperature-Compensated Multi-Level CMOS Modulators Operating from 10 K to 300 K for Cryogenic Interconnects," *IEEE Journal of Microwaves (JMW)*, IEEE, October 2025.

A. Sharma, **C. Kniss**, R. Phon, and R. Kim, "Ceramic Fiber Interconnects Beyond 1000°C Enabled by Automatic Gain Compensated Millimeter-Wave CMOS Transceivers," *2025 IEEE International Symposium on Circuits and Systems (ISCAS)*, pp. 1–5, IEEE, May 25, 2025.

CONFERENCES & PRESENTATIONS

Poster Presentation — Inaugural Riccio College of Engineering Innovation Day **November 2025**
University of Massachusetts Amherst *Amherst, MA*
- Presented recent research paper during the student poster and networking session

Oral Presentation — NIST SURF Colloquium **July 2025**
National Institute of Standards and Technology *Gaithersburg, MD*
- Presented research on cryogenic PCB design and lab instrumentation
- Practiced technical communication with a broad scientific audience

Poster Presentation — Folding Amplifier Project **Spring 2025**
Stevens Institute of Technology *Hoboken, NJ*
- Presented design and development of an analog folding amplifier operational up to 100 MHz
- Strengthened presentation skills and technical discussion capabilities

Demonstration — High-Temperature Alumina Fiber Waveguide (iCNS Launch Event) **Fall 2023**
Stevens Institute of Technology *Hoboken, NJ*
- Performed lab demonstration of alumina waveguide experiments at extreme temperatures up to 1100°C
- Presented data collection and VNA characterization results to multidisciplinary audience

RESEARCH EXPERIENCE

NIST SURF Program Intern **May 2025 – August 2025**
National Institute of Standards and Technology *Gaithersburg, MD*
- Developed PCBs in Altium Designer to be mounted in cryogenic chambers
- Gained experience with probing stations, VNAs, oscilloscopes, and signal generators
- Enhanced lab skills for use in cryogenic and non-cryogenic environments

Undergraduate Research Assistant, SINE Lab **January 2024 – May 2025**
Stevens Institute of Technology *Hoboken, NJ*
- Contributed ∼15 hours/week in-person lab work and weekly meetings
- Studied economic implications in RFIC design, fabrication, and implementation
- Funded by Provost's Office of Undergraduate Research

Analog Folding Amplifier Operational up to 100 MHz **May 2024 – Present**
Stevens Institute of Technology *Hoboken, NJ*
- Designed amplifier prototype and simulated in Cadence
- Improved independent study, circuit design, and project management skills
- Applied device physics to debugging and transistor sizing
- Held frequent meetings with Dr. Rod Kim; delegated tasks to peers for progress acceleration

High-Temperature Alumina Fiber Waveguide **September 2023 – December 2023**
Stevens Institute of Technology *Hoboken, NJ*
- Conducted extreme temperature experiments up to 1100°C
- Characterized S-parameters using a vector network analyzer
- Performed lab demos and presentations of the project

TEACHING EXPERIENCE

Teaching Assistant, Electronic Circuits Course **September 2023 – December 2023**
Stevens Institute of Technology *Hoboken, NJ*
- Hosted optional recitations, graded, and proctored exams for a class of 44 students
- Crafted practice problems and planned recitations that reviewed important course content
- Optional attendance was consistently 20–30 students

PROFESSIONAL MEMBERSHIPS

- **Tau Beta Pi** — Alpha Chapter
- **IEEE Eta Kappa Nu (HKN)**

SKILLS

- **Software:** Cadence, Git, Altium Designer, Renesas E2 Studio, MATLAB, Vivado, Arduino, SolidWorks, MS Office
- **Programming:** C and C++ (Experienced), Linux CLI, VHDL, x86 and ARMv8 Assembly, Java (Proficient)
- **Lab Equipment:** Vector Network Analyzers (VNA), Oscilloscopes, Signal Generators, Probing Stations, Cryogenic Systems

RELEVANT COURSEWORK

Graduate Core (UMass Amherst):
- E&C-ENG 606 Electromagnetic Field Theory: Electromagnetic fields in dielectric and lossy media, transmission lines, antennas and resonators treated with the concepts of duality, image theory, reciprocity, integral equations and other techniques

Undergraduate Core (Stevens):

- **Senior Design Project:** Speaker Spine, a brand-agnostic smart home audio system (team of 6)
- **Electronics Design:** Intro. VLSI Design, Electronic Circuits, Design of Dynamical Systems, Digital System Design
- **Device Physics:** Electromagnetism, Gen. Chem. II, Thermodynamics, Design with Materials, Quantum Mechanics w.E.A.
- **Embedded Systems:** Digital & Comp. Sys. Architecture, Real-Time & Embedded Sys., Microprocessor Systems, Computational Data Structures and Algorithms, Information Sys. Engineering I