

# James B. Glettler

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## RELEVANT SKILLS

Accomplished in analog and digital design, prototyping, system design and integration. Strong background in theory with solid practical experience. Team-player in large projects with excellent documentation, presentation and communication skills. Expertise with FPGAs, embedded processors. Completed projects with high speed low-jitter clocks, multi-gigabit serial data, power systems, high voltage supply, low-noise analog conditioning and measurement, mixed signal environments, CMOS imaging. High reliability and low-power design for space and rad-hard applications. U.S. citizen.

## EMPLOYMENT (Selected)

**Massachusetts Institute of Technology – Lincoln Laboratory**, Technical Staff – System engineer for space-based communication systems, integration into micro-satellites, continuing role as electronics and firmware lead. Study leader for imaging satellite system. <http://www.ll.mit.edu/> (2011 to Current)

**Massachusetts Institute of Technology – Lincoln Laboratory**, Associate Staff – Electronics & firmware lead for space-based optical communication systems and for compact extremely high pixel count video camera array. FPGA and DDR memory based front end electronics to offload focal plane with payload data rates >10Gbps. Further development and miniaturization of laser communication systems for terrestrial links, successful operation in daylight at km class distances. (2006 to 2011)

**Massachusetts Institute of Technology – Lincoln Laboratory**, Assistant Staff – Distributed receiver system electronics for NASA's Mars Laser Communications Demonstration telescope array. GHz-class single photon counting and clock synchronization system design and implementation in Xilinx/PowerPC hardware and low-noise VCXO. Demonstrated 14 Mbit/s end-to-end with link efficiency of greater than 2.5 bits-per-photon detected. Interface with ASIC design, telescope control, and link management over fiber interface. FPGA and clock system design lead. (2004 to 2006)

**Microwave Geophysics Group**, Research Assistant – Advanced 1.4GHz band-pass sampling radiometer with real-time FPGA correlator for remote sensing hydrology. Constructed environmentally robust microwave radiometers through 37GHz. Lead programmer of serially networked real-time embedded microcontrollers, high-speed FPGA correlator, analog amplifier/filter system, temperature control. <http://www.eecs.umich.edu/grs/> (2002 to 2004)

**Field Emitter Get-Away-Special Investigation**, Electrical Engineer – Design and prototyping of high-voltage switch and measurement system for electron field emitter arrays for NASA G-187 payload. Rigorous documentation. <http://aoss.engin.umich.edu/s3fl/fegi/> (2003 to 2004)

## EDUCATION

**Massachusetts Institute of Technology**, M.S. in Electrical Engineering – Focus on system analysis and communication. Lincoln Masters Scholars Program. Thesis title: Parameterized analysis of optical inter-satellite links for high resolution satellite communication. GPA: 4.6/5.0 (2007 to 2009)

**University of Michigan**, B.S. in Electrical Engineering, Summa Cum Laude – Emphasis in signals and systems, analog conditioning, acoustics. R. K. Brown award, Landes Prize, Branstrom award, Dean's List, University Honors, EECS Senior Scholar, Angell Scholar. GPA: 3.9/4.0 (2000 to 2003)

## PUBLICATIONS

Glettler, Hopman, Verghese, et. al. InP-based photon counting detector arrays with continuous mode readout integrated circuit. SPIE Optical Engineering 2008.

Verghese, et. al. Arrays of InP-based avalanche photodiodes for photon counting. IEEE JSTQE. 2007.

Hopman, Boettcher, Candell, Glettler, Shoup, Zogbi. An end-to-end demonstration of a receiver array based free-space photon counting communications link. Proc. SPIE Free Space Laser Communications VI. 2006

Pham, DeRoo, England, van Nieuwstadt, Glettler. A C band radiometer based on STAR-Light receivers. Proc. IEEE IGARSS. 2003.