

## Contact

[www.linkedin.com/in/mfschubert](http://www.linkedin.com/in/mfschubert)  
(LinkedIn)  
[scholar.google.com/citations](http://scholar.google.com/citations)  
(Other)

## Top Skills

Modeling  
Simulations  
Optics

## Publications

Interband tunnel junctions for wurtzite III-nitride semiconductors based on heterointerface polarization charges

Design of multilayer antireflection coatings made from co-sputtered and low-refractive-index materials by genetic algorithm

Fourier modal method for inverse design of metasurface-enhanced micro-LEDs

Polarization-charge tunnel junctions for ultraviolet light-emitters without p-type contact

Data-driven acceleration of photonic simulations

# Martin Schubert

INVRS.IO AI-guided design | Ex-Meta, Google, and Micron.  
Mountain View, California, United States

## Summary

Martin Schubert founded [invrs.io](http://invrs.io) in 2023, building on 15 years experience in the semiconductor and tech industry, more than 6 years experience leading inverse design programs at Google and Meta, and having held both software and hardware leadership positions. He has nearly 100 issued patents and 40 peer-reviewed papers.

At Meta's Reality Labs Research team, he founded and led an AI-guided design project in collaboration with Meta's AI research org. He published research on AI-guided combinatorial optimization for photonic design [1] and novel methods for inverse design of micro-LEDs; for the latter, he developed the open-source simulation engine [fmmx](#) [2], which achieved an orders-of-magnitude speedup over FDTD [3].

Before joining Meta, he founded and led Google X's recently-announced project AI-guided design of silicon photonics, focused on datacenter optical networking. His team developed the most advanced inverse design capability of its kind—including hardware-accelerated differentiable simulation, novel optimization algorithms [3], neural network models for manufacturing processes, and multiple foundry tapeouts and testing.

Martin originally joined Google to lead micro-LED efforts for a wall-size display project. He also worked on LEDs as a device scientist at Glo (nanowire LED startup acquired by Nanosys), where he prototyped several novel display technologies including multicolor monolithic LED arrays. Prior to Glo, Martin was at Micron—as a principal engineer in emerging memory (300 mm fab), and as the lead of an advanced R&D team for Micron's LED program (200 mm fab), where he delivered flip-chip and direct-attach LED architectures that achieved industry-competitive performance.

Martin received MS and MEng degrees from Cornell, and a PhD from RPI, all in electrical engineering. In his studies, he worked on semiconductor quantum transport modeling, optoelectronic device simulation, genetic algorithms for thin film optimization, and ultra-low refractive index materials.

[1] <https://dl.acm.org/doi/10.5555/3618408.3618810>

[2] <https://github.com/facebookresearch/fmmax>

[3] <https://doi.org/10.1364/OE.503481>

[4] <https://doi.org/10.1021/acsphotonics.2c00313>

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## Experience

invrs.io

Founder

September 2023 - Present (2 years 5 months)

Meta

Research Scientist

March 2022 - September 2023 (1 year 7 months)

X, the moonshot factory

7 years 5 months

Founder, AI-powered photonic design

September 2017 - February 2022 (4 years 6 months)

I founded and led Google X's AI-powered photonic design project.

Staff Hardware Engineer, Rapid Eval team

October 2014 - September 2017 (3 years)

Responsible for ideation, evaluation, and launch of new Google X moonshots.

Glo-USA

Device Architecture Lead

September 2013 - October 2014 (1 year 2 months)

Nanowire micro-LEDs, monolithic multicolor emitters, device modeling, and data analytics.

Micron Technology

3 years 9 months

Principal Engineer, Emerging Memory Cell team  
November 2012 - September 2013 (11 months)

Conductive bridge RAM, cross-point selectors, and high-density stacked memory concepts.

Advanced R&D Lead, LED team  
January 2010 - November 2012 (2 years 11 months)

Lighting-class CMOS-compatible direct-attach and flip-chip LEDs on engineered substrates.

Rensselaer Polytechnic Institute  
Postdoctoral Research Associate  
July 2009 - January 2010 (7 months)

Quantum transport simulations of large-bandgap tunnel junctions for UV light emitters.

Troy Research Corporation  
Chief Technical Officer  
October 2007 - June 2009 (1 year 9 months)  
Troy, NY

Cleantech startup with Deep-UV LED water purification tech. Winner of NASA Earth/Space Engineering Award at 2009 Rice University startup competition and finalist for 2009 MIT Clean Energy Prize.

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## Education

Cornell University  
B. S., Electrical Engineering

Cornell University  
M. Eng., Electrical Engineering

Rensselaer Polytechnic Institute  
Ph. D., Electrical Engineering

IIT Kanpur, NNIN International Winter School for Graduate Students