

Hazem Mesilhy

Computational Lithography



About me




Passionate engineer specializing in computational lithography, focusing on EUV mask absorber and reflective multilayer modeling. 5+ years of research experience. Skilled in diverse programming languages and disciplines. Committed to pushing technological boundaries and finding innovative solutions. Proven track record of exceeding project goals. Eager to contribute to groundbreaking advancements in lithography and beyond.

Skills

- Numerical Optimization
- Optics simulation / modeling
- Machine Learning
- Linux
- Problem solving
- Teamwork

Programming


- Python
- C++
- HPC
- Java

 hazem-mesilhy
 hazemiii
 Hazemiii.github.io

EXPERIENCE

2019–Present

Research Scientist


ERLANGEN · Germany 

 Fraunhofer

Specialize in EUV lithography with a focus on mask/shadowing effects, EUV mask enhancement, absorber, and reflective multilayer modeling. Developed a reliable multilayer degradation model. Participated in European project management, student mentoring, customer presentations, and Dr.LITHO maintenance.

2017–2019

Research Assistant

ERLANGEN · Germany 

 Fraunhofer

Engaged in first investigations into Hyper-NA EUV (NA of 0.75) feasibility study, while also providing vital support for EUV mask simulations and optimizations across diverse European projects. Participated in debugging, building, and generating installer packages for Dr.LITHO to ensure smooth customer experiences.

June–Sept. 2015

Intern Programmer

JAIPUR · India 

 WAVE

Focused on Android development, animation, and widget creation, incorporating machine learning algorithms for efficient unused folder management. Participation in DevOps and the software development cycle, contributing to streamlined server and proxy setup. Customized Chromium and Mozilla browsers for Android using C under Linux environment. Implemented image quality enhancements and filters with OpenCV.

DEGREES

2023


Ph.D.

FAU · Erlangen 

 FAU
FRIEDRICH-ALEXANDER-UNIVERSITÄT
ERLANGEN-NÜRNBERG

2019


Master of Science

FAU · Erlangen 

 FAU
FRIEDRICH-ALEXANDER-UNIVERSITÄT
ERLANGEN-NÜRNBERG

2016

Bachelor

FACULTY OF ENGINEERING · Cairo uni


 Department of Electronics and
Electrical Communications Engineering
Faculty of Engineering - Cairo University

AREAS OF SPECIALIZATION

- Computational Lithography
- OPC (Optical Proximity Correction)
- Modeling
- Programming
- Machine learning

AWARDS

2021

Best Student Paper Award:
2021 SPIE Photomask Technology + EUV Lithography

PUBLICATIONS

More than 17 publications: [Google Scholar](#)

LANGUAGES

Arabic	C2	mother tongue				
English	C2	●	●	●	●	●
German	A2	●	●	●	●	●

TALKS

- Various SPIE conferences and panels.
- 2022 ASML Technology Conference
- 2023 ASML Technology Conference

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