

# Hazem Mesilhy

Computational Lithography



## About me




Passionate engineer specializing in computational lithography, focusing on EUV mask absorber and reflective multilayer modeling. 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 

 TWEAK

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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