

ALEX MARTIN

R&D / OPTICAL / SOFTWARE ENGINEERING

CONTACT

ALEX@RETTCC.COM

+1.720.917.8112

PROGRAMMING

C#, C++, C

HW + SW INTEGRATION

GIT, SVN, WEB TECHS

PHYSICS / OPTICS

MODELING, DESIGN,
IMPLEMENTATION
NANOSTRUCTURES / META
MATERIALS

SOFTWARE

VISUAL STUDIO

ZEMAX, FRED

MATLAB

MACLEOD

SOLIDWORKS

C# .NET

FRAMEWORK

ASSEMBLIES

WPF, MVVM

DATABASES / SQL

MULTITHREADING

PARALLELIZATION

MATERIALS SCIENCE

SEM, FIB, EDS, XPS, TEM

ION BEAM SPUTTERING

OPTICAL
CHARACTERIZATION

OPEN SOURCE

MATH.NET

EMGU CV / OPENCV

ALGLIB

AFORGE.NET

IT / NETWORKING

LINUX / WINDOWS

SERVER ADMINISTRATION

NETWORK DESIGN AND

SECURITY

SUMMARY

Studied physics and optics. Working in the laser optics industry ever since. Many contributions to optical system designs, reviews, implementations, and support of product implementation from build through final QA.

Lead design and implementation of many custom optical systems and metrology tools, from motion control, data collection, image processing, custom graphics, data analysis and visualization. Design and build team member for a fiber to free space optical communication data port and critical lead for multi FPS metrology system for precise optical system alignment.

Software professional fulltime for the last 7 years, and part time for 20. I have a strong reputation for being self driven, competent, creative, an excellent problem solver, and I have a passion for constant improvement and continuous learning.

EXPERIENCE

SENIOR R&D ENGINEER III

RESEARCH ELECTRO-OPTICS - 07/2019 TO PRESENT

- Lead development of production critical metrology softwares for feedback during module assembly utilizing image processing of video feeds to servo on alignment inputs, functionally fit data, and measure performance output which support ~8M\$ in revenue.
- Electrical signal monitoring, triggering, and time series collection into databases upon which visualization, statistics and summary tools are used to support process control and maintenance for ~20 coating chambers generating ~30M\$ in revenue.

R&D ENGINEER II

RESEARCH ELECTRO-OPTICS - 06/15 TO 07/2019

- General sensor data collection, monitoring, analysis and reporting to support process monitoring and control across the full company which generates ~80M\$ in revenue yearly.
- Develop, deploy, and maintain ~25 production critical applications / websites / hardware-software systems across the plant in the last decade, and many more non-critical applications and databases in use by engineers and technicians daily.

R&D ENGINEER I

RESEARCH ELECTRO-OPTICS - 05/10 TO 06/2015

- Took over ownership of a custom C++ laser damage test system. Updated hardware and software for ISO 21254 compliance. Supports internal and customer coating qualification and testing. Various improvements to process and software capabilities.

ENGINEERING TECHNICIAN

RESEARCH ELECTRO-OPTICS - 07/07 TO 05/10

- Learned about optical fabrication coating and metrology. Prototyped a static fizeau interferometer that is still a production tool today. Demonstrated frequency shifting interferometer implementation in C++.

EDUCATION

UNIVERSITY OF COLORADO

PHYSICS, BACHELOR OF ARTS

MEMBERSHIP

COSINC ADVISORY COMMITTEE

INDUSTRY ADVISOR -
WWW.COLORADO.EDU/FACILITY/COSINC

SELECTED PUBLICATIONS

LARGE AREA DEFECT MAPPING FOR LASER DAMAGE PREDICTION

Proc. SPIE 10447, Laser-Induced Damage in Optical Materials (11/2017)

ADAPTIVE CHARACTERIZATION OF LASER DAMAGE FROM SPARSE DEFECTS

Proc. SPIE 9237, Laser-Induced Damage in Optical Materials (10/2014)

METHOD FOR STUDYING LASER-INDUCED DAMAGE FROM SPARSE DEFECTS

Proc. SPIE 8885, Laser-Induced Damage in Optical Materials (11/2013)