Matthew R. Goodman

Home
Mission District
San Francisco, CA 94110
meawoppl@gmail.com

meawoppl.github.io

Work
2051 Harrison St.
San Francisco, CA 94110
(415) 234-3549

Objective

Be a force for world betterment via incremental measured change.

Work Experience and Leadership

CEO & Co–Founder, Exclosure — Nov 2021 – Present

- Founded company, raised capital, recruited early team.
- Created worldwide space monitoring network based on small optical telescopes.
- Bid and won FFP contracts with NOAA/DOC for commercial space tracking pilot.
- Accepted into TAP Lab and Catalyst accelerator programs funded by Space Force.
- Proposed, won, and executed AFWERX STTR project.

Technical Mercenary, Various — 2019 – 2021

- **Starfish Neuroscience** – Aided in the design, build, and prototype of a transcranial focused ultrasound stimulation device. Roles ranged from simulation & modeling to mechanical, electrical, acoustic, integration and testing. Lead significant investigation of human skull geometry variation investigation across a large population.
- **Endiatx** – Implemented, in Verilog, complete image acquisition, compression, and radio transmission of imaging data from ingestible pill robot. Aided in electrical design for extremely power limited application.
- **Arizona Optical Metrology** – Build high performance computational optics design software for the translation of designs to reified VLSI mask artwork. Replaced existing tool with complete back-compatability, 10,000x speed increase and enhanced accuracy. Built OSS GDSII tooling optimized for the JVM ecosystem.

CTO & Co–Founder, 3Scan — May 2011 – May 2019

- Lead data intensive biotech startup from foundation to merger with Strateos
- Grew the organization through four doublings of staff, from 4 to 80+
- Hired, managed, and developed ICs and leads, totaling > 60 engineers.
- Worked with cofounders, board, VCs, leads, and pharma partners to provide strategic vision, technical roadmap, and product delivery
- Managed creation of high performance ($\approx$ 50Gb/s), big-data ($>$ 10PB) tooling for storage, analysis, and visualization of 3d histological data

President, Coup De Foudre — Fall 2015 – Present

- Created and lead a high-voltage technical arts troupe
- Delivered Burning Man 2019 Honorarium art project "Theophany"
- Incorporated and maintained a 501c3 charity structure
- Curate relationships with donors, museums, and grantees
- Portfolio: https://meawoppl.github.io/portfolio.html

Scientific Data Analyst, ATI Allvac — Summer 2007 – Summer 2008

- Unified huge body of process data from several databases for purposes of ML application
- Developed tools for engineers and analysts to model casting/forging processes
- Automated process simulation of solidification for process control and improvement

- Datamining and scientific data analysis for plant process improvement resulted in large cost savings by predictive/preventive maintenance

Consultant, PACE Metallography, ATI Allvac, Phoenix Heat Treating — Various

Graduate Researcher, University of Texas at Austin — Fall 2010 – Fall 2012
- Computational modeling and imaging analysis of the primary visual cortex of primates
- Development of machine learning techniques for medical recommendation systems
- Literal monkey wrangling

Graduate Research Assistant, University of Arizona — Fall 2008 – Spring 2010
- Modeled heat and mass transfer for NASA/ESA space solidification experiments on ISS
- Developed HPC CFD solver for solidification, microfluidics, and biological systems
- Worked with ISS payload operations on-site in Huntsville Alabama

Project Leader, SEDS "Rockoon" project — Fall 2008 – Spring 2010
- Led team of two–dozen undergraduates in interdisciplinary design project
- Responsible for FAA Clearances and safety of high-altitude high-power rocketry

President, Keramos & **Vice–President,** Material Advantage — Fall 2007 – Spring 2008
- Provided tutoring, and social organization
- Lead ≈ 10 students in outreach, teaching, and grant-writing.
- Keramos Awarded "Most Improved Chapter" in 2008

Treasurer – President, h+ Tucson — Fall 2007 – Spring 2008
- Organized a technoprogressive journal club
- This group became *h+ magazine*

MSE Laboratory TA/Preceptor, University of Arizona — Fall 2007 – Spring 2008
- MSE 414 – Solidification of Castings – Ran aluminum casting laboratory
- MSE 223 – Materials Processing – Taught three groups of 5–7 about materials processing
- MSE 110 – Solid State Chemistry – Oversaw MSE related lab activities

Barista, Starbucks — Fall 2005 – Fall 2008

Patents & Publications

F Aeffner, M Zarella, N Buchbinder, M Bui, **M Goodman**, D Hartman, G Lujan, M Molani, A Parwani, K Lillard, O Turner, V Vemuri, A Yuil-Valdes, and D Bowman "Introduction to Digital Image Analysis in Whole-slide Imaging" Digital Pathology Association, 2019.

M Goodman, T Huffman, C Daniel "Spatial multiplexing of histological stains" US Patent App. 15/205,288

C Daniel, **M Goodman**, K Sean, T Huffman "Methods and apparatuses for sectioning and imaging samples" US Patent App. 15/084,186

S Raghavan, **M Goodman**, T Huffman, C Daniel, C Monteith, J Kwon "Internet-connected high-throughput and high-resolution three-dimensional tissue scanner to enable large-scale automated histology" Imaging Systems and Techniques (IST), 2016.

M Goodman, C Daniel "Motion strategies for scanning microscope imaging" US Patent App. 14/529,503

C Sung, Y Choe, **M Goodman**, T Huffman, "Scalable, Incremental Learning for Cell Detection in High-Throughput 3D Microscopy Data" International Joint Conference on Neural Networks 2013.

AG Hendrick, RG Erdmann, **MR Goodman**, "Practical Considerations for Selection of Representative Elementary Volumes for Fluid Permeability in Fibrous Porous Media," Transport in Porous Media. Volume 94. 2012.

MR Goodman "Brain–Machine Interfaces" – Chapter 26 of *New Materials and Technologies For Healthcare.* ISBN: 978-1848165588. 2012.

RG Erdmann, AG Hendrick, and **MR Goodman** "Properties of Stochastic Permeability," Transactions of the Indian Institute of Metals. 2011.

News & Publications

"An operating system for the biology lab"
Nature Outlook Sept. 2019

"Three-dimensional Imaging and Scanning: Current and Future Applications for Pathology"
Journal of Pathology Informatics Sept. 2017

"3Scan raises $14 million for a robotic microscope that could accelerate drug discovery"
TechCrunch July 2016

"Digital Imaging On The Cutting Edge Of Tissue Analysis"
Forbes Jan. 2015

"Mapping brain circuitry with a light microscope"
Nature Methods June 2013

Presentations

"Cloud Pathology" [re:Invent] Cloud Computing for Biotech R&D Oct. 2018

"New Approaches for Volumetric Pathology." MICCAI COMPAY 2018 Workshop Sept. 2018

"Digital Pathology Challenges" Vision Industry and Technology Forum Dec. 2017

"Make Dangerous Art" Ignite Talks Sept. 2017

"The Physics of Tesla Coils and Swing-Sets" Ignite Talks Sept. 2016

"10 Tools for Everything" Lightning talk at SciPy June 2012

Education

PhD. Biomedical Engineering (Incomplete)
University of Texas at Austin

M.S. Materials Science and Engineering, (GPA 3.83/4.0)
Thesis: "Properties of Stochastic Flow and Permeability of Random Porous Media"
University of Arizona, Tucson, AZ

B.S. Materials Science and Engineering (In major GPA 3.55/4.0)
University of Arizona, Tucson, AZ

Academic Honors

UT – NIH NRSA Fellowship for Imaging Science and Informatics	2010–2011
UA – Dean's List	2007–2008
UA – ASM International – Darko Babic Scholarship	2007–2008
UA – College of Engineering – Award for Academic Distinction	2005–2008
UA – College of Engineering – Departmental Honors for Outstanding Achievement	2005–2006

Languages and Tools

Fluent in:	English, Python, Java, c, Verilog, AWS/GCP, LaTeX
Useful with:	Typescript/Javascript, Rust, Docker, c++, LLVM-IR, CUDA, Scala
Under duress:	Japanese, FORTRAN, qBasic, php, sql, RoR, bash, Meteor, MATLAB
Novice at:	Golang, Kotlin, Electron, React Native, Unity

Miscellaneous

OSS Contributions:	cPython, numba, scipy, pandas, OpenCV, libcamera, esp-idf, pycuda, datadog, emscripten, progressbar, mingds
Interests:	Brain-Machine Interfaces, Plasma Physics, Rock Climbing, woodworking, Blacksmithing and Casting, High Power Electronics, EDA Software, Abstract Algebra, Group-Theory, Quasicrystals, Satellites, Astronomy, SciFi, Writing, Bicycles, Computational Geometry, Timelapse Photography