Overview

Going forward, I would like to transfer my semiconductor/data knowledge to additive manufacturing, gene therapy, artificial intelligence, or applied neuroscience themes.

Given the privilege, my degrees in Chemical Engineering and Physical Chemistry, along with a solid research background in Materials Science, provide ample experience to perform the duties required in the marketplace. A majority of semiconductor projects I encountered, involved either processing or characterization, so I am strong in both areas.

With over 20 years as a Research Scientist, I have coauthored roughly 16 papers, half under the direction of John Haggerty at MIT, and the remainder with support from Klaus Bachmann at NC State. During the course of research, I have: (1) grown the first laser-induced, chemical vapor deposition, amorphous silicon solar cells, (2) developed a microwave plasma, chemical vapor deposition system, to create polycrystalline diamond from methane gas, in a regime where kinetics dominates over thermodynamics, (3) monitored the surface evolution of compound semiconductor heterostructure films, in a chemical beam epitaxy system, with plane polarized reflectance spectroscopy, pioneered by our research group.

In more recent years, I plunged into the world of macroeconomics, human behavior, and statistical analysis, through futures trading. Using quantitative investment strategies, participants seek high probability trades. To handle market data, I applied digital signal processing techniques, in the spirit of John Ehlers, an Electrical Engineer from Raytheon. Along the way, I combined statistics with digital signal processing to produce highly responsive indicators, enhancing trade signal clarity. By immersing myself in the data science of financial markets, and backtesting of trading strategies, I have improved my computer programming skills, and established more techniques to deal with data interpretation.

Going forward, I would like to transfer my semiconductor/data knowledge to additive manufacturing, gene therapy, artificial intelligence, or applied neuroscience themes. I invite you to visit my personal website to view current literature and computational projects. If you have any concerns, feel free to contact me.

Christopher J Harris

Christopher J Harris
Philadelphia, PA

Skype
cjharrisatru

cjharrisatru@yahoo.com
https://cjharris.github.io/

Profile

Chemical Engineer seeking a Process Engineer, Quality Engineer, Research & Development, or Data Scientist role, leading to a Chief Technology Officer position:

crystal growth	plasma chemistry	gene therapy
surface science	laser excitation	applied neuroscience
chemical vapor deposition	optical characterization	computer modeling
molecular beam epitaxy	electrochemical methods	statistical analysis
semiconductor devices	additive manufacturing	process control

Thesis

Real Time Reflectometry of Ga–based Compound Semiconductor Films on Silicon during Plasma Enhanced Molecular Beam Epitaxy, NCSU Materials Science Dept: **1999**.

Clifton Strengths

Character

Strategic	faced with any given scenario, can quickly spot the relevant patterns.
Learner	have a great desire to learn and want to continuously improve.
Ideation	able to find connections between seemingly disparate phenomena.
Futuristic	inspired by the future and what could be.
Self-Assurance	possess an inner compass yielding confidence in decision making.

Experience

Laboratory Technician, Medical Diagnostic Laboratory, Genesis Biotechnology Group: Hamilton, NJ (7/20 to present)

- Perform conventional Polymerase Chain Reaction (PCR) and real-time PCR.
- Extract samples for Chromatographic, Vacuum Filtration, or Magnetic Bead separation following GMP/GLP guidelines.
- Operate Rotor-Gene and Thermocycler apparatus.

Engineering Consultant, Independent (6/11 to present)

- Compose webpage content to demonstrate work skills.
- Become a Gerson Lehrman Council Member, April 2020, to testify in patent lawsuits.

Futures Trader, Independent (9/06 to present)

- Shift from fundamental evaluation of stocks to technical analysis of futures.
- Combine statistics with digital signal processing to produce indicators with better trade signal clarity.

Research Assistant, Maine Chemistry Dept: Orono, ME (8/03 to 5/06)

- Synthesize aurophilic gold compounds, a potential drug candidate for arthritis.
- Apply cyclic voltammetry to investigate catalytic activity in gold compounds.
- Induce electrochemiluminescence in a ruthenium compound for DNA analysis.

Teaching Assistant, Rutgers Chemistry Dept: New Brunswick, NJ (1/00 to 1/03)

- Present lab techniques to students on all undergraduate levels, including PChem.
- Pass the cumulative exam, the written portion of a PhD degree.

Research Assistant, NCSU Materials Science Dept: Raleigh, NC (1/87 to 12/99)

- Develop a microwave plasma, chemical vapor deposition system, to create polycrystalline diamond from methane gas, in a regime where kinetics dominates over thermodynamics.
- Achieve unique ellipsoidal plasma, energizing the surface, relative to spherical geometry.
- Design a radio frequency nitrogen plasma source for GaN film growth.
- Monitor the surface evolution of compound semiconductor heterostructure films, in a chemical beam epitaxy system, with plane polarized reflectance spectroscopy.

▸ Derive substrate temperature from plane polarized reflectance intensity.

Research Specialist, MIT Advanced Energy Materials Lab: Cambridge, MA (11/84 to 1/87)
- ▸ Invent a new approach for process control to optimize laser power.
- ▸ Write a Pascal based data acquisition program for DOS environment in 1986, long before LabView enters the Windows market.
- ▸ Analyze optical signals from a ceramic powder reaction chamber, leading to a computer monitoring scheme, which replaces a human operator.
- ▸ Construct interferometer to measure film thickness, providing a realtime signal, to calibrate growthrate.
- ▸ Refine process control loop to stabilize laser power, producing a steady deposition rate with reliable material properties.
- ▸ Collect in-situ stress measurements of growing films, through deflection of an optical laser, as sample curvature evolves.
- ▸ Grow the first laser-induced, chemical vapor deposition, amorphous silicon solar cell.

Stock Investor, Independent (5/84 to 9/06)
- ▸ Evaluate fundamental aspects of technology and phamaceutical sectors.
- ▸ Choose lucrative issues, including initial pubic offerings, IPOs, based on semiconductor knowledge, similar to a venture capitalist.

Intern

Mass Field Station: Waltham, MA (5/83 to 8/83)
Grow vegetables on sewage sludge layers to determine plant uptake of heavy metals.

International Paper: Camden, AR (5/82 to 8/82)
Apply quality control principles to glossy file folder stock in a papermill process.

Sun Oil Company: Main Pass, LA (5/81 to 8/81)
Perform system maintenance, technical evaluation on an offshore oil & gas production platform: MP-293A.

Sun Oil Company: Snyder, TX (5/80 to 8/80)
Explore gas compressor repair, plant process control on a cryogenic natural gas processing facility.

Literature

Real-time Monitoring of Surface Processes by P-polarized Reflectance, J. of Vacuum Science & Technology: **1997**, *A15*, 807.

Molecular Layer Epitaxy by Real-time Optical Process Monitoring, Applied Surface Science: **1997**, *112*, 38.

Boron Incorporation in Hydrogenated Amorphous Silicon Films Prepared by Chemical Vapor Deposition, J. of Noncrystalline Solids: **1987**, *97*, 1419.

Laser-induced Chemical Vapor Deposition of Hydrogenated Amorphous Silicon: Photovoltaic Devices and Material Properties, Solar Cells: **1987**, *21*, 177.

Education

MS *Physical Chemistry*	Rutgers: New Brunswick, NJ	Jan 2003
MS *Material Science*	North Carolina State: Raleigh, NC	unofficial
BS *Chemical Engineering*	Texas A&M: College Station, TX	May 1984
HS *Diploma*	Waltham High: Waltham, MA	Jun 1979

Certificate

Computational Investing	Georgia Tech: Coursera	Dec 2014
Computational Neuroscience	Washington: Coursera	Jul 2015
Data Scientist's Toolbox	Johns Hopkins: Coursera	Mar 2015
Python Programming for Everybody	Michigan: Coursera	May 2015
Data Analysis and Statistical Inference	Duke: Coursera	May 2015

Honor

Bausch & Lomb Science Award

DECEMBER 10, 2014

Statement of Accomplishment

WITH DISTINCTION

CHRISTOPHER HARRIS

HAS SUCCESSFULLY COMPLETED GEORGIA INSTITUTE OF TECHNOLOGY'S ONLINE OFFERING OF

Computational Investing, Part I

This course covers computational aspects of investing, including: Company valuation, the Capital Assets Pricing Model, Efficient Markets Hypothesis, the role of information in pricing, historical data and its manipulation, portfolio performance assessment and optimization.

TUCKER BALCH, PH.D
ASSOCIATE PROFESSOR
COLLEGE OF COMPUTING
GEORGIA INSTITUTE OF TECHNOLOGY

NELSON BAKER, PH.D.
DEAN, PROFESSIONAL EDUCATION
GEORGIA INSTITUTE OF TECHNOLOGY

JULY 02, 2015

Statement of Accomplishment
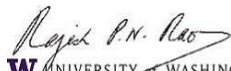
CHRISTOPHER HARRIS

HAS SUCCESSFULLY COMPLETED THE ONLINE OFFERING OF
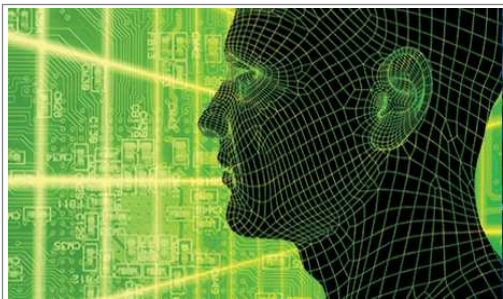
Computational Neuroscience

This advanced undergraduate course introduces a broad range of computational techniques for analyzing, modeling, and understanding the behavior of neurons and networks of neurons in the brain.

UNIVERSITY of WASHINGTON

DR. RAJESH P. N. RAO
PROFESSOR
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
UNIVERSITY OF WASHINGTON

UNIVERSITY of WASHINGTON

DR. ADRIENNE FAIRHALL
ASSOCIATE PROFESSOR
DEPARTMENT OF PHYSIOLOGY AND BIOPHYSICS
UNIVERSITY OF WASHINGTON

MARCH 08, 2015

Statement of Accomplishment

WITH DISTINCTION

CHRISTOPHER HARRIS

HAS SUCCESSFULLY COMPLETED THE JOHNS HOPKINS UNIVERSITY'S OFFERING OF
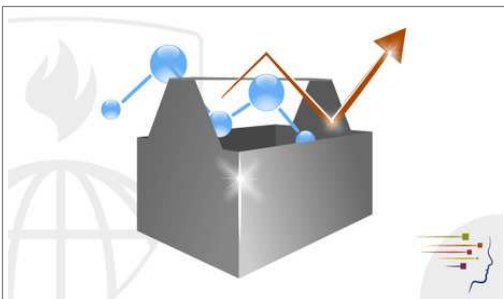
The Data Scientist's Toolbox

Overview of the data, questions, & tools that data analysts & scientists work with. It is a conceptual introduction to the ideas behind turning data into knowledge as well as a practical introduction to tools like version control, markdown, git, GitHub, R, and RStudio.

JEFFREY LEEK, PHD
DEPARTMENT OF BIOSTATISTICS, JOHNS HOPKINS
BLOOMBERG SCHOOL OF PUBLIC HEALTH

ROGER D. PENG, PHD
DEPARTMENT OF BIOSTATISTICS, JOHNS HOPKINS
BLOOMBERG SCHOOL OF PUBLIC HEALTH

BRIAN CAFFO, PHD, MS
DEPARTMENT OF BIOSTATISTICS, JOHNS HOPKINS
BLOOMBERG SCHOOL OF PUBLIC HEALTH

MAY 07, 2015

Statement of Accomplishment

WITH DISTINCTION

CHRISTOPHER HARRIS

HAS SUCCESSFULLY COMPLETED

Programming for Everybody (Python)

The Programming for Everybody (#PR4E) course from the University of Michigan School of Information introduces students to the Python programming language and studies how Python can be used to do data analysis.

CHARLES SEVERANCE
CLINICAL ASSOCIATE PROFESSOR, SCHOOL OF INFORMATION
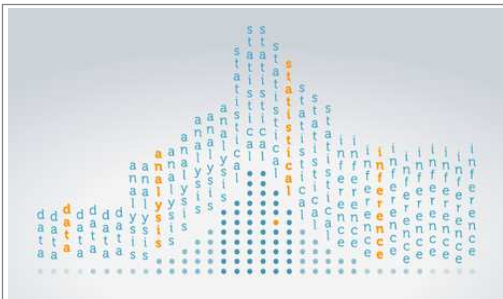UNIVERSITY OF MICHIGAN

MAY 19, 2015

Statement of Accomplishment

WITH DISTINCTION

CHRISTOPHER HARRIS

HAS SUCCESSFULLY COMPLETED AN ONLINE NON-CREDIT COURSE OFFERED BY DUKE UNIVERSITY.

Data Analysis and Statistical Inference

This course introduces students to core statistical concepts such as exploratory data analysis, statistical inference and modeling, and basic probability, as well as statistical computing.

DR. MINE ÇETINKAYA-RUNDEL
ASSISTANT PROFESSOR OF THE PRACTICE
STATISTICAL SCIENCE, DUKE UNIVERSITY