Contact

bkroumov@gmail.com

www.linkedin.com/in/alex-kroumov-b5a0201a8 (LinkedIn)

Top Skills

Molecular Dynamics
Data Science
Computer-Aided Design (CAD)

Languages

English (Native or Bilingual)
Bulgarian (Native or Bilingual)
Spanish (Limited Working)

Certifications

OSHA General Industry Certification
CTE Technical Skills - Biosciences

Honors-Awards

Regeneron ISEF Special Award Recipient
AP Scholar With Distinction
Healthy Urban Environments Grant
3 Time Academic Bar Recipient
AZSEF Best of Fair and Best of Biochemistry

Patents

Hydrothermal Hat (HydroHat)

Alex Kroumov

Johns Hopkins Biomedical Engineering 2027 | Hodson Trust Scholar | Biomedical Data Science | Neuroengineering
Chandler, Arizona, United States

Summary

I am a junior undergraduate at Johns Hopkins University studying Biomedical Engineering and Applied Math. I deploy statistical methods to analyze patient and device data as a part of my design team to make an acoustic tonometer that classifies high versus low eye pressure in patients with limited access to glaucoma care. I am also working on an AI therapy supplement for students in university to converse with during times of acute but mild mental stress.

Experience: Engineering Projects, R&D, Data science methods, Supervised and Unsupervised learning, Statistical analysis and theory, Probabilistic modeling, Grant writing, Intellectual property, Licensing, Protocols, V&V, Presenting, Python and Javascript for LLMs, Flask, React, Arduino for bioelectronics, Python and MATLAB for Machine Learning

Current Passions: Human-Machine Intelligence, Generative AI, LLMs, Data Science, Brain-Computer Interfaces

Experience

OcuSound
Co-Founder
November 2023 - Present (1 year 8 months)
Baltimore, Maryland, United States

Developed density plots and classification algorithms using Scikit-Learn, Matplotlib, and Pandas in Python to analyze data distribution, leading to device enhancements that reduced sample variance and improved measurement accuracy for high versus low intraocular pressure (IOP).
Developed a statistical analysis tool to assess patient survey data, examining the impact of demographic factors on the likelihood of device usage across a sample of 70 patients.

Conducted financial analysis of a medical device business venture using industry-standard development data, leading to a first-place finish and a $5,000 prize at JHU's HopStart Business Pitch Competition.

Anuncia Medical, Inc.
Research And Development Intern
June 2024 - August 2024 (3 months)
Scottsdale, Arizona, United States

Leveraged Solidworks to create a set of barbs for a DOE to optimize connection force, resulting in the final design for a component of the class II ReFlow Mini Flusher.
Created a basic mathematical model incorporating pressure, speed, and energy, to help explain a medical device to neurosurgeons.
Performed multiple test methods and wrote reports regarding tensile strength, depression force, and flow resistance.

SenseHydro LLC
Chief Communications Officer
April 2020 - May 2024 (4 years 2 months)
Arizona, United States

Invented patent pending, grant-funded heatstroke prevention device; Recorded meeting minutes for four years; Collaborated with Massachusetts Institute of Technology and Arizona State University; Raised awareness for heat illness in Arizona; Earned 3 media publications; Established school’s research club with over 50 members.

ASU Biodesign Institute
1 year

Program Coordinator
June 2022 - May 2023 (1 year)

Train in Biodesign concepts such as gel electrophoresis, DNA Nanotube Arrangement, Image analysis, and Microscopy in order to be able to train students in Biophysics Club at ACP.

Biophysics Club President at BioSense Pipeline
June 2022 - May 2023 (1 year)

Train in Biodesign concepts such as gel electrophoresis, DNA Nanotube Arrangement, Image analysis, and Microscopy in order to be able to train students in Biophysics Club at ACP.

TEDxYouth@Ocotillo
TEDx Speaker
June 2022 - July 2022 (2 months)
Chandler, Arizona, United States

Spoke at a youth conference about the role of research in lifelong skill development

Education

Johns Hopkins Whiting School of Engineering
Bachelor of Science - BS, Applied Maths and Statistics - BS, Biomedical Engineering, Applied Maths and Statistics · (August 2023 - May 2027)

Chandler/Gilbert Community College
Associate of Science - AS · (July 2019 - May 2023)

Arizona College Prep High School
High School Diploma · (2017 - 2023)