

# Alexander Bock

Somerville, Massachusetts

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## EDUCATION

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**Bachelor of Science** | *Computer Science, Biology*  
Tufts University

September 2015 – May 2019  
Medford, Massachusetts

## WORK EXPERIENCE

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**Machine Learning Operations Engineer**  
Generate Biomedicines

November 2021 – present  
Cambridge, Massachusetts

- Build and maintain scalable data transformation and modeling pipelines for proteomic sequence data
- Design user interfaces for ML researchers and immunologists to analyze pipeline outputs
- Automate deployment routines for pipelines capable of processing up to 1 billion sequences

**Research Programmer**  
Boston Fusion

July 2019 – October 2021  
Lexington, Massachusetts

- Developed customized data analysis and machine learning pipelines for R+D efforts
- Presented approaches and results to customers regularly across project life cycle
- Delivered software prototypes to scientists on large-scale projects with DARPA and ONR
- Introduced and led Agile development methodology for interdisciplinary teams of 10-20 people

**Research Intern**  
Tufts University School of Engineering

June 2017 – May 2019  
Medford, Massachusetts

- Developed C++ agent-based model simulation of an area coverage task to measure performance in a high-dimensional parameter space
- Developed Python pipeline to infer and classify sentiment in human conversations using NLP techniques (text processing, topic modeling)
- Interfaced with graduate students to translate hypotheses into technical prototypes and summarize results in publications

## PROJECTS

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**Proteomic analysis with topic modeling**  
[github.com/alex-bock/enzyme\\_FP\\_LDA](https://github.com/alex-bock/enzyme_FP_LDA)

**Protein functional determiner**  
[github.com/aidy80/Protein-Functional-Determinator](https://github.com/aidy80/Protein-Functional-Determinator)

## PUBLICATIONS

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ORCID: [0000-0003-1870-8499](https://orcid.org/0000-0003-1870-8499)

**An NLP approach to quantify dynamic salience of predefined topics in a text corpus**  
2021 | Bock et al. | SBP-BRiMS

**AI-augmented human performance evaluation for automated training decision support**  
2021 | Palladino et al. | 4th International Conference on Intelligent Human Systems Integration

**Using topic modeling to infer the emotional state of people living with Parkinson's disease**  
2019 | Valenti et al. | Assistive Technology

### **Inferring emotional state from word semantics and conversational topics**

2019 | Valenti et al. | International Conference on Autonomous Agents and Multiagent Systems (AAMAS)

### **Comparison of simple agent capabilities for an online area coverage task**

2018 | Buckingham et al. | IEEE Symposium Series on Computational Intelligence (SSCI)

## **HONORS AND AWARDS**

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### **De Florez Prize in Human Engineering**

April 2019

Recognition for human factors engineering research at Tufts University

### **Neubauer Scholar**

September 2015 - May 2019

Grant for undergraduate students to pursue independent research efforts

## **SKILLS**

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**Programming** Python, C++, MATLAB, SQL

**Tools** *Infrastructure*: AWS, Prefect, Docker, Kafka, ArangoDB, MongoDB; *Python*: NumPy, SciPy, Pandas, scikit-learn, matplotlib, Gensim, pytest

**Development + documentation** Agile/Scrum (certified Scrum master), Git, Bitbucket, Jira