ELIE CELNIKIER

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Education

University of California Berkeley, Master of Engineering in Machine Learning applied to Biology 2019-2020

- Machine Learning | Computational Biology | Neuroscience (Systems and Circuits)
- Berkeley Engineering Excellence Fellow

Arts et Métiers ParisTech, Bachelor and Master of Science in Mechanical Engineering & Computer Science 2014-2019

- One of France's top-ranking graduate schools for science and engineering.
- Mechanical Engineering | Computer Science | Statistics | Advanced Probabilities

Experiences and Projects

Head of Data Science, Evolution Devices, Berkeley, CA 2023 - Present

- Developed and deployed proprietary machine learning algorithms for two products:
  - *EvoWalk:* Sensor-based leg wearable that estimates gait metrics and analyzes walking patterns in real-time.
  - *EvoVision:* Markerless motion capture system for gait analysis that leverages 3D multi-person pose estimation techniques.
- Oversaw backend architecture design and successfully launched the *EvoVision* 3D markerless motion capture system into production. Managed a team of 2 software engineers.
- AI lead for FDA application of the *EvoWalk*: led to FDA approval in December 2023.
- Secured a $1.2M National Science Fund (NSF) equity-free grant as the Tech Lead.
- ML | DL | Time series analysis | Signal processing |Computer vision | PyTorch | TensorFlow | AWS

Machine Learning Engineer, Evolution Devices, Berkeley, CA 2020 - 2023

- Developed statistical models for gait metrics estimation using noisy real-time signals from inertial sensors.
- Created an end-to-end markerless 3D human pose estimation pipeline based on cutting-edge computer vision literature.
- Applied clustering (K-Means, Mean-Shift, DBSCAN), classification (SVM, Random Forest, MLP, CNN, RNN), and statistical analysis (Statistical visualization, Bayesian inference, correlation analysis) on kinematic data to investigate gait patterns.
- ML | Time Series | Classification | Clustering | Signal Processing | Computer Vision | Statistical Analysis

Neural Data science team member, NeuroTech@Berkeley, UC Berkeley Aug 2019 - April 2020

- Analyzed and built models from EEG data as a member of the software team.
- Machine Learning Tools | Signal processing | Muse headband | Teamwork

Research Assistant - Brain machine interface, CNRS, Paris June 2018 - Aug 2019

- Worked in a neuroscience's lab affiliated to the CNRS (The French National Centre for Scientific Research)
- Contributed to development of a brain-computer interface for mice to control an artificial limb with sensory feedback
- Developed the reward system with python and 3D printing.
- Brain-computer interface | Signal processing | Software programming (Python) | 3D CAD

Skills

Scientific Background: Data Science (data cleaning and mining, clustering, PCA, random forest, SVM, TensorFlow 2.4, scikit-learn, pandas, neural networks) | Applied Mathematics (linear algebra, signal processing, advanced probabilities, advanced statistics) | Bioengineering (computational biology, brain-computer interfaces, eeg and physiological data analysis)

CS Skills: Python (7 years) | PyTorch and TensorFlow (4 years) | AWS (2 years) | SQL (3 years)

Languages: French (Native) | English (Fluent) | Spanish (Advanced) | Dutch (Beginner)

Interests

Music: Played Alto Saxophone for 7 years | Music theory courses for 5 years
Sports: Practiced competitive tennis for 10 years | Member of the soccer team at Arts et Métiers ParisTech