AARON GERSTON
DATA SCIENTIST

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Summary

Experienced Data Science Team Lead with a strong background in biomedical signal processing, machine learning, and data-driven decision-making. Seeking a remote consulting position in data science or a leadership role to advance analytic capabilities and drive impactful solutions.

Work Experience

Data Science Team Lead *2023 – present*
X-trodes, Ltd. *(remote)*
- Led and mentored a team of two data scientists to drive innovation in signal processing, develop automated solutions, and enhance strategic decision-making.
- Added $6M projected value to untapped niche market and co-authored 2 peer-reviewed articles by overseeing algorithm development of automated sleep-scoring and REM Sleep Without Atonia detection
- Saved $5M+ in potential funding shortfalls and added $10M in projected revenue by accelerating time to market of Sleep Product through analysis and actionable recommendations for product's analytic layer.

Data Scientist *2021 – 2023*
X-trodes, Ltd. *(Herzliya, Israel)*
- Secured a patent for innovative algorithms, published a white paper, and identified a critical product vulnerability that sparked extensive R&D investigations and led to major improvements in product quality.
- Created SDK to interface with X-trodes' product via Python for real-time analysis to facilitate real-time electrophysiological research and bolster external collaborations.
- Reduced Support Team's workload by 50% and accelerated HDLC by automating report generation.
- Accelerated HDLC and time to market of Sleep Product by automatic signal quality inspections that identify, analyze, and locate the source of product defects.

Research Data Scientist *2019 – 2021*
Tel Aviv University, Neuroengineering Lab *(Tel Aviv, Israel)*
- Designed & implemented experiments & data analysis pipelines that drove corporate partner's R&D.
- Developed algorithms to extract low-SNR signal sources (e.g. heartbeat, brain activity, correlates of sweat production) from facial electrodes.
- Built & maintained a data exploration GUI that saved lab members & collaborators countless hours in data exploration & analysis per experiment.

Research Engineer *2018 – 2019*
Eriksholm Research Centre (Oticon A/S) *(Copenhagen, Denmark)*
- Estimated listening effort based on pupillometry recordings from remote eye trackers.
- Python: architected interface between eye trackers & experiment scripts; MATLAB: signal processing, feature extraction, & statistical tests; R: mixed-model based stats.
- Led workshops and presented and published findings internally.

EDUCATION

MSc. Biomedical Engineering (Biomedical Signal Processing) 2016 – *2018*
Technical University of Denmark *(Copenhagen, Denmark)*
- Studied biomedical signal processing, feature engineering, affective computing, predictive modeling.
- Predicted mental phenomena from wearable sensors for early recognition and monitoring of mental health disorders. Outperformed existing stress recognition algos with 99% cross-validated accuracy.

BSc. Biochemistry & Molecular Biology (with Honors) *2010 – 2014*
Chapman University *(Orange, California, USA)*
- Minors: Computer Science & Psychology.
- Awards: Chancellor Scholarship, Commitment to Accessibility Award, Summer Undergraduate Research Fellowship.
- Teaching Assistant: Introduction to Computer Science; Tutor: science, math, programming.

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PROFICIENCIES

Languages: English (native), Spanish (fluent), Python (fluent)

Technical Skills:

- Machine Learning & Predictive Modelling:
  - Supervised learning (e.g., regression, classification)
  - Unsupervised learning (e.g., clustering, dimensionality reduction)
  - Hyperparameter tuning, model selection, and validation techniques
- Data Preparation & Analysis:
  - Data wrangling, data cleaning, and exploratory data analysis (EDA)
  - Feature engineering, dimensionality reduction, data transformation
- Mathematics & Statistics:
  - Statistical analysis, probability theory
  - Hypothesis testing
  - Signal processing (time and frequency domain)
- Data Storytelling & Communication:
  - Expertise in transforming complex data into clear insights
  - Strong written, verbal, and visual communication skills, including experience with data visualization and presentation
- Problem-Solving & Research:
  - Strong critical thinking skills with a focus on innovative solutions
  - Proven ability to conduct in-depth research and synthesize findings to support decision-making

Technical Tools & Frameworks:

- Data Manipulation: NumPy, pandas *(expert)*
- Data Visualization: Matplotlib, Plotly, Seaborn, Bokeh *(expert)*
- Natural Language Processing (NLP): spaCy, WordBlob, NLTK *(competent)*
- Machine Learning: Scikit-Learn, Huggingface, TensorFlow, PyTorch *(competent)*
- Version Control & Collaboration: Git, GitHub *(competent)*
- Cloud Computing & Deployment: AWS (S3, EC2, Lambda), Docker, Render *(familiar)*

PUBLICATIONS

Peer-reviewed journals

- Possti, D. *et al.* (2024) *Semi-automatic quantification of REM sleep without atonia in natural sleep environment* [Preprint]. doi:10.21203/rs.3.rs-4431097/v1.
- Oz, S. *et al.* (2023) 'Monitoring sleep stages with a soft electrode array: Comparison against vpsg and home-based detection of rem sleep without atonia', *Journal of Sleep Research*, 32(5). doi:10.1111/jsr.13909.
- Arché-Núñez, A. *et al.* (2023) 'Bio-potential noise of dry printed electrodes: Physiology versus the skin-electrode impedance', *Physiological Measurement*, 44(9), p. 095006. doi:10.1088/1361-6579/acf2e7.
- Gat, L. *et al.* (2022) 'Similarities and disparities between visual analysis and high-resolution electromyography of facial expressions', *PLOS ONE*, 17(2). doi:10.1371/journal.pone.0262286.
- Dror, A. *et al.* (2018) 'Resistance training threshold for elevating bone mineral density in growing female rats', *International Journal of Sports Medicine*, 39(05), pp. 382–389. doi:10.1055/s-0043-125447.

Patents

- Hanein, Y., Gerston, A., & Pereman, Z. (n.d.). *Method and System for Electrophysiological Determination of a Behavioral Activity* (Patent No. 63/400423). US Patent and Trademark Office. (Pending.)