

HANNAH CHRISTINA ARJONILLO

@ harjonillo@pm.me
📍 Metro Manila, Philippines

Data scientist with 6 years of industry experience in medtech and healthcare, spanning physiological time-series ML, behavioral text and topic modeling, and health outcomes modeling. Currently a PhD Physics student at UP Diliman, working on hyperspectral unmixing methodologies applied to Philippine senatorial voting patterns.

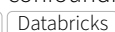
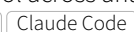
EXPERIENCE

Dec 2024 Data Scientist, BIOINTELLISENSE INC.

Apr 2026

📍 Remote / Golden, CO

- Led development of a core body temperature estimation algorithm from skin and ambient temperature signals:
 - Built a rule-based on/off-body detector using skin temperature rate-of-change thresholds to isolate on-body segments with equilibration transients
 - Fitted a physics-informed thermal model (constant, linear, and two exponential terms at different time scales) to extract features
 - Fed thermal features into a Ridge-CV regression with polynomial feature expansion and degree search
 - Conducted error analysis and validation against clinical reference measurements
- Benchmarked a vendor temperature model against the internal model using Bland–Altman and correlation analyses on clinical trial data; conducted error analyses on study limitations, informing algorithm selection and vendor discussions
- Contributed to clinical outcomes analyses on large-scale EMR data — built propensity-score-matching pipelines with calipered nearest-neighbor matching, Poisson log-link regressions for mortality and length-of-stay, subgroup interaction models, and balance diagnostics across hospital and hospital-to-home cohorts
- Developed candidate algorithms for wearable on/off-body detection and binary sleep/wake classification using multimodal signals (HR, HRV, skin temperature, accelerometry, ECG contact quality)
- Analyzed ECG–PPG pulse arrival time for cuffless blood pressure estimation, building subject-wise models and limits-of-agreement evaluations
- Constructed reusable ICD/DRG/MDC and Elixhauser comorbidity mappings from CMS reference tables for confounding control across analyses

Dec 2022 Machine Learning Scientist, SEQUELAE PH INC. / LORE HEALTH LLC

Nov 2024

📍 Remote / 101 W. Broadway, 9th Floor San Diego, CA 92101

- Designed and productionized topic models and other algorithms that aggregate human-generated content from the platform (Lore Health app / community.lorehealthcare.com) into featured central ideas called Lore
- Aided in the development of various human-in-the-loop processes, including automating tasks that transfer manual files to SQL Server tables, collaborating with software developers and writers, and working with Snorkel (software with human annotation and model development features)
- Built and iterated on models that describe how conversations evolve: for example, whether a section of text describes abstract or concrete ideas, or whether it shares a personal experience or asks for others' experiences
- Contributed to internal text processing and cloud utility packages

June 2022 Insighting Expert, Advanced Analytics Division, Enterprise Data Office GLOBE TELECOM, INC.

December 2022

📍 The Globe Tower, 32nd St. Cor. 7th Ave. BGC, Taguig City

- Developed an algorithm to spatially aggregate cell site activity and features based on their longitude and latitude
- Produced Tableau dashboards and presented spatial analysis findings to senior leadership

February 2022 May 2022	Lecturer (Part-time), NATIONAL INSTITUTE OF PHYSICS  National Institute of Physics, University of the Philippines - Diliman, Diliman, Quezon City > Taught introductory physics and laboratory courses on electromagnetism to undergraduate students online
January 2020 March 2022	Data Scientist, OPTUMLABS, INC. / UNITEDHEALTH GROUP RESEARCH AND DEVELOPMENT (UHG R&D)  18th Floor, The Link Building, Cebu IT Park, Cebu City > Used NLP techniques to explore user reviews on a particular app acquired by UnitedHealth Group > Developed a classification model that uses economic factors and health factors to predict whether a patient will soon develop Type 2 Diabetes, and compared its results to existing literature > Contributed to the development of an epidemiological model (SIRD) to predict the cost of COVID-19 testing and the corresponding strategy to optimize the cost based on location infection rates, and developed the backend for a public-facing COVID-19 testing strategy simulator > Investigated non-standard requests and problems using equation-based modeling, machine learning methods, statistics, and network science, implemented in Python and/or R > Created reports, processed tables, and/or interactive dashboards to provide resources and tools to internal and external stakeholders    
July 2019 December 2019	Data Scientist Apprentice, UNITEDHEALTH GROUP RESEARCH AND DEVELOPMENT (UHG R&D)  Bank of the Philippine Islands (BPI), The Enterprise Center Tower 2, Ayala Ave., Makati > BPI-UHG Data Science (BUDS) Training Program > Acquired foundations in statistics, machine learning, and programming for data science research    

SKILLS

Programming	Python, R, Arduino C/C++
Data engineering	Databricks, Google BigQuery, Microsoft SQL Server, Airflow
Model deployment	FastAPI, Docker, Google Cloud Run
Dashboard deployment	Dash (Python), CSS
AI-assisted workflows	Claude Code, OpenAI API
Development	GitHub / git, Jupyter Notebook, MLflow, Snorkel, PyCharm, RStudio, Backstage
Office	LaTeX, Microsoft Office, Google Docs Suite

PUBLICATIONS

- 2024 Euste, J. L., Arjonillo, H.C. and Saloma, C. (2024) Time-resolved culture maps derived from the Integrated Values Survey data (1981–2022). **Physica A: Statistical Mechanics and its Applications** **659:130317**, <https://doi.org/10.1016/j.physa.2024.130317>
- 2023 Arjonillo, H.C. and Saloma, C. (2023) Monte Carlo analysis of focused Gaussian beam in scattering media: Curvature correction and Mie scattering. **Optics Communications** **535:129314**, <https://doi.org/10.1016/j.optcom.2023.129314>
 - > **International Publication Award (IPA) 2023** recipient, University of the Philippines - Diliman

EDUCATION

- August 2025 - Present **University of the Philippines - Diliman**, PhD Physics
‣ Research focus: Hyperspectral unmixing applied to senatorial voting patterns in the Philippines
‣ Adviser: May T. Lim, PhD
- January 2021 - June 2024 **University of the Philippines - Diliman**, MS Physics
‣ Thesis title: Measuring intra-country cultural diversity
‣ Adviser: Caesar A. Saloma, PhD
- August 2014 - June 2019 **University of the Philippines - Diliman**, BS Applied Physics (Instrumentation Physics), Cum Laude
‣ Thesis title: Towards a more accurate Monte Carlo analysis of propagating focused Gaussian beam in scattering media
‣ Adviser: Caesar A. Saloma, PhD

MUSIC EDUCATION

- 2016 **Associated Board of the Royal Schools of Music (ABRSM)**, Diploma in Music Performance (Violin)
2014 **Associated Board of the Royal Schools of Music (ABRSM)**, Grade 8: Violin (Distinction), Piano (Merit)
2012 **Associated Board of the Royal Schools of Music (ABRSM)**, Grade 5: Theory of Music (Merit)

CONFERENCES & WORKSHOPS

- June 2024** **Contributor and presenter, 42ND SAMAHANG PISIKA NG PILIPINAS PHYSICS CONFERENCE**
 Online
‣ H. C. Arjonillo, J. L. Euste, and C. Saloma. Measuring cultural diversity within countries with ellipses, contour maps, and distances, Proceedings of the Samahang Pisika ng Pilipinas 42, SPP-2024-1D-01 (2024). URL: <https://proceedings.spp-online.org/article/view/SPP-2024-1D-01>.
cultural values collective human behavior COVID-19
- July 2022** **Participant, WORKSHOP ON QUANTITATIVE HUMAN ECOLOGY, ABDUS SALAM INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS**
 Online
‣ Workshop that brought together scientists from different disciplines (economics, ecology, demography, physics, complex systems science, climatology, epidemiology, social sciences, and intelligent systems) in order to promote a wider integration of methods across disciplines that tackle challenges central to sustainability, such as the rising inequality, demographic crises, migrations, biodiversity loss, and impacts of climate change.
sustainability complex systems polymaking
- October 2021** **Contributor and presenter, 39TH SAMAHANG PISIKA NG PILIPINAS PHYSICS CONFERENCE**
 Online
‣ H. C. Arjonillo, J. L. Euste, and C. Saloma. Correlating cultural values with COVID-19 outcomes, Proceedings of the Samahang Pisika ng Pilipinas 39, SPP-2021-PB-20 (2021). URL: <https://paperview.spp-online.org/proceedings/article/view/SPP-2021-PB-20>.
cultural values collective human behavior COVID-19
- June 2019** **Contributor and presenter, 37TH SAMAHANG PISIKA NG PILIPINAS PHYSICS CONFERENCE**
 Bohol Tropics Resort, Tagbilaran City, Bohol, Philippines
‣ H. C. Arjonillo and C. Saloma. Curvature correction and Mie scattering in Monte Carlo analysis of propagating focused Gaussian beam in scattering media, Proceedings of the Samahang Pisika ng Pilipinas 37, SPP-2019-PB-20 (2019). URL: <https://paperview.spp-online.org/proceedings/article/view/SPP-2019-PB-20>.
Confocal optical microscopy in scattering media Monte Carlo analysis photon transport beam propagation
- June 2018** **Contributor and presenter, 36TH SAMAHANG PISIKA NG PILIPINAS PHYSICS CONFERENCE**
 Citystate Asturias Hotel, Puerto Princesa City, Palawan, Philippines
‣ H. C. Arjonillo and C. Saloma. Preserving photon detection and average power in random scattering media and curvature correction in vectorized particle Monte Carlo simulation of focused Gaussian beam, Proceedings of the Samahang Pisika ng Pilipinas 36, SPP-2018-2C-06 (2018). URL: <https://paperview.spp-online.org/proceedings/article/view/SPP-2018-2C-06>.
Monte Carlo analysis light scattering beam propagation

