Anna Baglione (Spears), PhD

linkedin.com/in/annabaglione | github.com/abaglione | AnnaBaglione.com

EDUCATION

PhD, Systems Engineering, University of Virginia, Charlottesville, VA, USA

MS, Informatics w/Health Informatics Focus, Indiana University**,** Bloomington, IN, USA

BS, Computer Science and Engineering, The Ohio State University, Columbus, OH, USA

RESEARCH AND WORK HISTORY

Data Scientist, Stanson Health | Premier Inc, Remote, 02/2023 - Present

- Conduct fine tuning experiments on clinical notes using Finetune Flan T5 and Llama 2 large language models (LLMS) with QLORA / PEFT.
- Research and implement efficient prompt engineering strategies (e.g., optimizing medical chart excerpt length with respect to model context window size).
- Collaborate with Stanson's Chief Data Scientist to identify new areas of application for LLMs within our product suite.
- Build modular experiment pipelines in Python for conducting LLM research at scale
- Build feature sets from EHR data (clinical notes, CPT / ICD-10 / SNOMED codes, etc).
- Build XGBoost pipelines for prior authorization wait time reduction.
- Collaborate with Clinical Product team to implement scalable machine learning solutions for clients.

Assistant Director of Clinical Informatics, Evolent Health, Remote, 12/2021 – 02/2023

- Leveraged Medicare/Medicaid claims, EHR, lab, ADT, pharmacy, and SDOH data to generate risk predictions for over 7 million patients using supervised machine learning (XGBoost).
- Collaborated with Engineering and Product teams to coordinate development of 6 new machine learning models for patient risk stratification..
- Mentored Senior Analysts
    - Provided guidance on data extraction using SQL
    - Helped develop production monitoring environments.

Graduate Research Assistant, University of Virginia**,** Charlottesville, VA, 06/2018 - 12/2022

- Designed and executed a National Cancer Institute-supported research study of mobile and wearable devices for medication management in oncology settings.
- Built and evaluated supervised machine learning pipelines in Python for mHealth research studies, including:
    - predicting medication adherence from mobile device time series data, and
    - predicting mood from self-report and mobile app data.
- Developed and oversaw comprehensive research plans for machine learning and oncology research.
- Collaborated with psychologists and mental health practitioners to implement the MindTrails program in a large-scale behavioral health cohort within the Kaiser Permanente patient network.
- Co-developed and maintained full-stack production environment for online Cognitive Behavioral Therapy program (MindTrails; https://mindtrails.virginia.edu).
- Secured over $100,000 in grant and fellowship funding to support my doctoral research.

Graduate Research and Teaching Assistant, Indiana University, Bloomington, IN, 08/2016 - 05/2018

- Lead mixed-methods studies: Conducted virtual interviews and administered online surveys; Conducted qualitative coding
- Taught undergraduate informatics classes: Held office hours, graded assignments, worked with instructors to co-develop exam questions.

PUBLICATIONS

J. W. Eberle *et al.*, "Web-based interpretation bias training to reduce anxiety: A sequential multiple-assignment randomized trial," 2024. *(Preprint)*.

A. L. Silverman *et al.*, "Minimal effect of messaging on engagement in a digital anxiety intervention.," *Professional Psychology: Research and Practice*, vol. 54, no. 3, p. 252, 2023.

A. Zakeresfahani *et al.*, "Design Implications to Support Integrative Medicine in Pregnancy Care," *Proceedings of the ACM on Human-Computer Interaction*, vol. 6, no. CSCW2, pp. 1–32, 2022.

K. E. Daniel *et al.*, "Cognitive bias modification for threat interpretations: using passive Mobile Sensing to detect intervention effects in daily life," *Anxiety, Stress, & Coping*, vol. 35, no. 3, pp. 298–312, 2022.

A. N. Baglione, "Modeling User Behavior in Context: A Systems-Level Approach to Mobile Health," PhD Thesis, University of Virginia, 2022.

A. N. Baglione *et al.*, "mHealth for Medication and Side Effect Monitoring: Patients' Attitudes Toward Smart Devices for Managing Oral Chemotherapy During Lung Cancer Treatment," in *International Conference on Pervasive Computing Technologies for Healthcare (PervasiveHealth)*, Springer Nature Switzerland Cham, 2022, pp. 570–583.

A. N. Baglione, L. Cai, A. Bahrini, I. Posey, M. Boukhechba, and P. I. Chow, "Understanding the relationship between mood symptoms and mobile app engagement among patients with breast cancer using machine learning: Case study," *JMIR Medical Informatics*, vol. 10, no. 6, p. e30712, 2022.

D. Riley, N. Kaur, **A. Baglione**, R. Hall, L. Barnes, and R. Gentzler, "P45. 16 Adverse Event Burden of Oral Tyrosine Kinase Inhibitors in EGFR and ALK Metastatic Non-Small Cell Lung Cancer," *Journal of Thoracic Oncology*, vol. 16, no. 10, p. S1092, 2021.

A. N. Baglione, M. P. Clemens, J. F. Maestre, A. Min, L. Dahl, and P. C. Shih, "Understanding the technological practices and needs of music therapists," *Proceedings of the ACM on Human-Computer Interaction*, vol. 5, no. CSCW1, pp. 1–25, 2021.

S. Mendu *et al.*, "A framework for understanding the relationship between social media discourse and mental health," *Proceedings of the ACM on Human-Computer Interaction*, vol. 4, no. CSCW2, pp. 1–23, 2020.

S. Mendu, S. Baee, **A. Baglione**, and L. Barnes, "Redesigning the Quantified Self Ecosystem with Mental Health in Mind," in *CHI 2020 Workshop on Technology Ecosystems: Rethinking Resources for Mental Health*, 2020.

J. F. Maestre, P. Zdziarska, A. Min, **A. Baglione**, C.-F. Chung, and P. C. Shih, "Not Another Medication Adherence App: Critical Reflections on Addressing Public HIV-related Stigma Through Design," in *23rd ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2020)*, 2020.

C. Burley *et al.*, "Increasing engagement in ehealth interventions using personalization and implementation intentions," in *2020 Systems and Information Engineering Design Symposium (SIEDS)*, IEEE, 2020, pp. 1–5.

M. Boukhechba, **A. N. Baglione**, and L. E. Barnes, "Leveraging mobile sensing and machine learning for personalized mental health care," *Ergonomics in design*, vol. 28, no. 4, pp. 18–23, 2020.

A. N. Baglione, J. Gong, M. Boukhechba, K. J. Wells, and L. E. Barnes, "Leveraging mobile sensing to understand and develop intervention strategies to improve medication adherence," *IEEE pervasive computing*, vol. 19, no. 3, pp. 24–36, 2020.

S. Baee, M. Rucker, **A. Baglione**, M. K. Ameko, and L. Barnes, "A Framework for Addressing the Risks and Opportunities In AI-Supported Virtual Health Coaches," in *NextCoach Workshop at 14th EAI International Conference on Pervasive Computing Technologies for Healthcare (EAI PervasiveHealth 2020)*, 2020.

S. Mendu, M. Boukhechba, **A. Baglione**, S. Baee, C. Wu, and L. Barnes, "SocialText: A Framework for Understanding the Relationship between Digital Communication Patterns and Mental Health," in *SCSN 2019 : International Workshop on Semantic Computing for Social Networks and Organization Sciences*, 2019.

J. de Paiva Azevedo *et al.*, "Gamification of ehealth interventions to increase user engagement and reduce attrition," in *2019 Systems and Information Engineering Design Symposium (SIEDS)*, IEEE, 2019, pp. 1–5.

A. N. Baglione, M. M. Girard, M. Price, J. Clawson, and P. C. Shih, "Modern bereavement: a model for complicated grief in the digital age," in *Proceedings of the 2018 CHI conference on human factors in computing systems (CHI 2018)*, 2018, pp. 1–12.

S. Natarajan, A. Prabhakar, N. Ramanan, **A. Baglione**, K. Connelly, and K. Siek, "Boosting for Postpartum Depression Prediction," in *The Second IEEE/ACM Conference on Connected Health: Applications, Systems and Engineering Technologies*, 2017.

A. N. Baglione, M. Girard, M. Price, J. Clawson, and P. Shih, "Mobile technologies for grief support: prototyping an application to support the bereaved," in *Workshop on Interactive Systems in Health Care (WISH) at AMIA*, 2017.

WORKS IN PROGRESS

S. Baee, J.W. Eberle, **A. N. Baglione**, T. Spears, E. Lewis, H.C. Behan, H. Wang, D. H. Funk, B. E. Teachman, and L. Barnes, "Early Attrition Prediction for Web-Based Interpretation Bias Modification to Reduce Anxious Thinking." JMIR Preprints. 03/08/2023:51567. DOI: 10.2196/preprints.51567.

PRESENTATIONS

A. N. Baglione (Spears), "Large Language Models in Healthcare: Where Are We Now, and Where Are We Headed?" Guest lecture given to the UVA Biomedical Data Science Innovation Lab Seminar Series, Online, 2024.

A. N. Baglione *et al.*, "mHealth for Medication and Side Effect Monitoring: Patients' Attitudes Toward Smart Devices for Managing Oral Chemotherapy During Lung Cancer Treatment." Paper presented at the 2022 International Conference on Pervasive Computing Technologies for Healthcare (PervasiveHealth), Online, 2022.

A. N. Baglione, M. P. Clemens, J. F. Maestre, A. Min, L. Dahl, and P. C. Shih, "Understanding the technological practices and needs of music therapists." Paper presentation given to the 2021 Conference on Computer Supported Cooperative Work (CSCW), Online, 2021.

A. N. Baglione, M. M. Girard, M. Price, J. Clawson, and P. C. Shih, "Modern bereavement: a model for complicated grief in the digital age." Paper presentation given to the Conference on human factors in computing systems (CHI), Montreal, QC, Canada, 2018.

FELLOWSHIPS, GRANTS, AND OTHER FUNDING

Emily Couric Cancer Center Trainee Fellowship, 10/2021 - 09/2022
Emily Couric Cancer Center; National Cancer Institute (**NCI**), Grant P30 CA44579

NIH Biomedical Data Sciences Training Fellowship, 08/2020 - 07/2021
National Institutes of Health (**NIH**), Project Number: 5T32LM012416-05 to JP

Peter and Crisler Quick Fellowship, 2018 - 2022
Jefferson Scholars Foundation at the University of Virginia

TEACHING EXPERIENCE

University of Virginia

Graduate Teaching Assistant

- DS-3001: Foundations of Machine Learning, Fall 2021.
- Systems Engineering Senior Capstone Course, Fall 2019.

Indiana University Bloomington

Assistant Instructor

- INFO-I400: Topics in Informatics, Spring 2018.
- INFO-I407: Introduction to Health Informatics, Fall 2017.
- INFO- I310: Media, Arts, & Technology, Spring 2017.
- INFO-I549: Advanced Prototyping, Fall 2016.

SERVICE

University of Virginia

- *Outreach Chair,* Graduate Engineering Student Council (GESC), 2020 - 2021
- *Mental Health Subcommittee Co-Leader,* GESC, 2019 - 2020
- *Link Lab Student Representative*, Grace Hopper National Conference, 2018, 2019

Indiana University Bloomington

- *Treasurer*, Graduate Informatics Student Organization (GISA), 2017 - 2018,
- *Graduate Mentor,* Proactive Health Informatics REU, 2017
- *Student Volunteer Coordinator,* School of Informatics, Computing, and Engineering Prospective PhD Student Visit Weekend, 2016 - 2017

LICENSES AND CERTIFICATIONS

Generative AI with Large Language Models, Coursera, Cred. ID J8WWTW4CCGCB, Aug 2023
DeepLearning.AI TensorFlow Developer Specialization, Coursera, Cred. ID 3NFR5BQTRLGW, July 2023

SKILLS

Python | data science | large language models (LLM) | prompt engineering | TensorFlow | PyTorch | AWS | Sagemaker | S3 | machine learning | digital health | research | grant writing | wearables | mobile health