Samson Koelle

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I am a researcher and engineer with diverse skills in artificial intelligence, interpretable machine learning, and computational biology. I am looking for team-based work with real-world impact.

Skills

Methods:	Python	PyTorch	GitHub	Sequence models	Unsup. learn.	Full stack
Domains:	Generative AI	TTS	Neuro.	Mol. dynamics	Hematology	

Experience

Uberduck, Inc. Cofounder/Head of ML Seattle, WA 08/2021 – 03/2024
AI science and engineering for text-to-speech; headed R&D (up to 3 person team) for startup
Allen Institute for Brain Science Contractor Seattle, WA 01/2020 – 12/2020
Data science for brain connectivity; published first author paper
Amazon SCOT Forecasting Sci. Research Intern Seattle, WA 06/2017 – 09/2017
AI science for sales forecasting; online training of fine-tuned models
Fred Hutchinson Graduate assistant Seattle, WA 09/2015 – 06/2017
Data science for single cell RNA sequencing
Nat. Heart, Lung, & Blood Inst. IRTA Bethesda, MD 07/2013 – 05/2015
Data and experimental science for hematopoietic stem cells; published first author paper

Education

Y Combinator San Francisco, CA 01/2022 – 03/2022
Ph.D. Statistics University of Washington, Seattle, WA 09/2015 – 03/2022
Thesis: *Geometric algorithms for interpretable manifold learning.*
Committee: Marina Meila (advisor), Yen-Chi Chen, Zaid Harchaoui, John Lee
B.A. Mathematics Columbia University, New York, NY 09/2009 – 05/2013

References

Zach Ocean	Uberduck, Inc.	z@uberduck.ai
Marina Meila	University of Washington Department of Statistics	mmp@uw.edu
Stefan Mihalas	Allen Institute for Brain Science	stefanm@alleninstitute.org
Cynthia Dunbar	National Heart Lung and Blood Institute	dunbarc@nhlbi.nih.gov

Service

Reviewer	AISTAT	2023
Reviewer	JMLR	2021
Reviewer	UAI	2020-2021
Organizer	UW Geometric Data Analysis reading group (uwgeometry.github.io)	2017-2021

Publications

Koelle, Samson et al. (Dec. 2023). "Modeling the cell-type-specific mesoscale murine connectome with anterograde tracing experiments". en. In: *Netw Neurosci* 7.4, pp. 1497–1512.

Zhang, Hanyu et al. (Feb. 2023). "Dictionary-based Manifold Learning". In: *AISTATS 2024 (to appear)*. arXiv: 2302.00263 [cs.LG].

Koelle, Samson (2022). "Geometric Algorithms for Interpretable Manifold Learning". en. PhD thesis. Ann Arbor, United States: University of Washington.

Koelle, Samson J et al. (2022). "Manifold Coordinates with Physical Meaning". In: *J. Mach. Learn. Res.* 23.133, pp. 1–57.

Buenfil, James et al. (2021). "Tangent Space Least Adaptive Clustering". en. In: *2021 ICML Unsupervised Learning for Reinforcement Learning Workshop*.

Espinoza, Diego A et al. (Apr. 2021). "Interrogation of clonal tracking data using barcodetrackR". en. In: *Nat Comput Sci* 1.4, pp. 280–289.

Xu, Jason et al. (2019). "Statistical inference for partially observed branching processes with application to cell lineage tracking of in vivo hematopoiesis". In: *Ann. Appl. Stat.* 13.4, pp. 2091–2119.

Meila, Marina et al. (Nov. 2018). "A regression approach for explaining manifold embedding coordinates".

Paulson, K G et al. (Sept. 2018). "Acquired cancer resistance to combination immunotherapy from transcriptional loss of class I HLA". en. In: *Nat. Commun.* 9.1, p. 3868.

Wu, Chuanfeng et al. (Nov. 2018a). "Clonal expansion and compartmentalized maintenance of rhesus macaque NK cell subsets". en. In: *Sci Immunol* 3.29.

Wu, Chuanfeng et al. (Jan. 2018b). "Geographic clonal tracking in macaques provides insights into HSPC migration and differentiation". en. In: *J. Exp. Med.* 215.1, pp. 217–232.

Yabe, Idalia M et al. (Dec. 2018). "Barcoding of Macaque Hematopoietic Stem and Progenitor Cells: A Robust Platform to Assess Vector Genotoxicity". en. In: *Mol Ther Methods Clin Dev* 11, pp. 143–154.

Yu, Kyung-Rok et al. (Mar. 2018). "The impact of aging on primate hematopoiesis as interrogated by clonal tracking". en. In: *Blood* 131.11, pp. 1195–1205.

Koelle, Samson J et al. (Mar. 2017). "Quantitative stability of hematopoietic stem and progenitor cell clonal output in rhesus macaques receiving transplants". en. In: *Blood* 129.11, pp. 1448–1457.

Wu, Chuanfeng et al. (Apr. 2014). "Clonal tracking of rhesus macaque hematopoiesis highlights a distinct lineage origin for natural killer cells". In: *Cell Stem Cell* 14.4, pp. 486–499.