

Departments of Statistics and Mathematics
College of Liberal Arts and Sciences
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EDUCATION	<p>University of Florida, Gainesville, Florida B.S. Statistics (<i>summa cum laude</i>), December 2021 B.S. Mathematics (<i>cum laude</i>), December 2021</p>
RESEARCH EXPERIENCE	<p>University of Florida, Gainesville, Florida Research Assistant, March 2020 – Present</p> <ul style="list-style-type: none">• Advisors: Aaron J. Molstad and Rhonda Bacher• High-dimensional integrative multinomial regression with response categories measured at different resolutions across datasets• Application to cell type prediction for single-cell gene expression data <p>University of Oslo, Oslo, Norway Research Intern, May 2019 – July 2019</p> <ul style="list-style-type: none">• Advisors: Victor Greiff and Geir Kjetil Sandve• Software development for immune receptor sequencing data analysis and machine learning <p>University of Florida, Gainesville, Florida Research Assistant, March 2017 – March 2020</p> <ul style="list-style-type: none">• Advisor: Todd M. Brusko• Analysis of immune receptor sequencing and single-cell gene expression data in the context of type 1 diabetes immunology
WORK EXPERIENCE	<p>10x Genomics, Pleasanton, California Software Product Manager – Bioinformatics, August 2021 – Present</p>
SUBMITTED MANUSCRIPTS & PREPRINTS	<ol style="list-style-type: none">1. Keshav Motwani, Rhonda Bacher, and Aaron J Molstad. Binned multinomial regression with application to integrative cell type annotation. <i>arXiv, submitted to Annals of Applied Statistics</i>, 20212. Chakravarthi Kanduri, Milena Pavlovic, Lonneke Scheffer, Keshav Motwani, Maria Chernigovskaya, Victor Greiff, and Geir Kjetil Sandve. Profiling the baseline performance and limits of machine learning models for adaptive immune receptor repertoire classification. <i>bioRxiv, submitted to Bioinformatics</i>, 2021
PUBLICATIONS	<ol style="list-style-type: none">1. Milena Pavlovic, Lonneke Scheffer, Keshav Motwani, Chakravarthi Kanduri, Radmila Kompova, Nikolay Vazov, Knut Waagan, Fabian LM Bernal, Alexandre Almeida Costa, Brian Corrie, and others. immuneML: an ecosystem for machine learning analysis of adaptive immune receptor repertoires. <i>Nature Machine Intelligence</i>, 20212. Keshav Motwani, Leeana D Peters, Willem H Vliegen, Ahmed Gomaa El-Sayed, Howard R Seay, M Cecilia Lopez, Henry V Baker, Amanda L Posgai, Maigan A Brusko, Daniel J Perry, and others. Human regulatory T cells from umbilical cord blood display increased repertoire diversity and lineage stability relative to adult peripheral blood. <i>Frontiers in Immunology</i>, 11:611, 20203. Emmi-Leena Ihantola, Henna Ilmonen, Anssi Kailaanmaki, Marja Rytönen-Nissinen, Aurelien Azam, Bernard Maillere, Cecilia S Lindestam Arlehamn, Alessandro Sette, Keshav Motwani, Howard R Seay, and others. Characterization of proinsulin T

cell epitopes restricted by type 1 diabetes-associated HLA class II molecules. *The Journal of Immunology*, 204(9):2349–2359, 2020

4. Mohsen Khosravi-Maharlooei, Aleksandar Obradovic, Aditya Misra, **Keshav Motwani**, Markus Holzl, Howard R Seay, Susan DeWolf, Grace Nauman, Nichole Danzl, Haowei Li, and others. Cross-reactive public TCR sequences undergo positive selection in the human thymic repertoire. *The Journal of Clinical Investigation*, 129(6):2446–2462, 2019

CONTRIBUTED CONFERENCE PRESENTATIONS

1. **Keshav Motwani**, Milena Pavlovic, Geir Kjetil Sandve, Victor Greiff, and Todd M Brusko. T-cell receptor repertoires in peripheral blood encode type 1 diabetes status. In *Adaptive Immune Receptor Repertoire Community Meeting*, Genoa, Italy, May 2019
2. **Keshav Motwani**, Milena Pavlovic, Geir Kjetil Sandve, Victor Greiff, and Todd M Brusko. T-cell receptor repertoires in peripheral blood encode type 1 diabetes status. In *NIH Human Islet Research Network Annual Meeting*, Washington, DC, April 2019
3. **Keshav Motwani** and Todd M Brusko. The T cell receptor CDR3B contains sequence motifs that predict disease state in nPOD samples. In *Network for Pancreatic Organ Donors with Diabetes (nPOD) Annual Meeting*, Hollywood, FL, February 2018

SOFTWARE

1. **Keshav Motwani**. *IBMR: R/C++ package for fitting the integrative binned multinomial regression model*, 2021. <https://github.com/keshav-motwani/IBMR>
2. **Keshav Motwani**. *MultiLORS: R/C++ package for fitting a multi-dataset version of the LORS model proposed by Yang et al.*, 2021. <https://github.com/keshav-motwani/MultiLORS>
3. Milena Pavlovic, Lonneke Scheffer, **Keshav Motwani**, Victor Greiff, and Geir Kjetil Sandve. *immuneML: A platform for machine learning analysis of adaptive immune receptor repertoire data*, 2021. <https://github.com/uio-bmi/immuneML>
4. **Keshav Motwani**. *scanalysis: Multi-sample visualization and immune repertoire analysis utilities for single-cell data*, 2019. <https://github.com/keshav-motwani/scanalysis>

HONORS AND AWARDS

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| 2021 | University Scholars Program (\$1750)
(Department of Statistics, University of Florida) |
| 2020 | Goldwater Scholar (\$15000) |
| 2019 | Summer International Undergraduate Research Program (\$5000)
(University of Oslo, Norway) |
| 2018 | University Scholars Program (\$1750)
(College of Medicine, University of Florida) |
| 2018-2021 | Bright Futures Florida Academic Scholarship (full tuition) |

SERVICE

- UF Undergraduate Scholars Research Program Advisory Committee (2018-2020)
- UF American Physician Scientists Association Bioinformatics Director (2018-2020)