University of Colorado April 30, 2021
CU Anschutz Medical Campus
School of Medicine, Department of Pediatrics
Section of Endocrinology

To whom it may concern,

I am excited to apply for the Biostatistics Research Instructor position with the Department of Pediatrics Endocrinology Section. I have just over two years' experience with biostatistics consulting at the Barbara Davis Center as part of my graduate student research assistant role. I will be defending my biostatistics MS thesis at the end of May, and would love the opportunity to continue in and expand on my role at the BDC after graduation.

During my time at the BDC, I've had the opportunity to work on multiple research projects covering a wide range of statistical methods at every stage of the clinical research process from study design and power calculations to manuscript writing and review. Our work has provided me with experience in all of the technical competencies required for this position, and all of our projects have resulted in published conference abstracts or peer reviewed manuscripts. In addition to technical proficiency with programming and statistical modeling, I believe the Child Health Biostatistics Core would benefit from my attention to detail, ability to manage multiple projects at once while maintaining a high standard, positive outlook even under pressure, and enthusiasm for exploring new statistical and machine learning techniques.

I believe I would be an excellent fit for this position given my work experience at both Children's Hospital Colorado and the Barbara Davis Center, and hope to hear from you soon.

Sincerely,

Tim Vigers

Tim Vigers
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Tim Vigers

Curriculum Vitae

Education

2018–2021 **Master of Science**, *The University of Colorado*, Denver.
Biostatistics

2011–2014 **Bachelor of Arts**, *The University of Colorado*, Boulder.
Molecular, Cellular, and Developmental Biology

Masters Thesis

Title *A Mediation Approach to Discovering Causal Relationships Between the Metabolome and DNA Methylation in Type 1 Diabetes*

Supervisors Katerina Kechris, PhD, Lauren Vanderlinden, MS, and Jill Norris, PhD

Experience

2018–Present **Graduate Research Assistant**, University of Colorado, Denver.
I am currently a graduate student in the CU Denver biostatistics MS program. In my research assistant position I have consulted with investigators and clinicians on REDCap database design and data collection, protocol and grant review, study design and randomization schemes, power calculations, manuscript review, and statistical analyses. Responsibilities included:

- Longitudinal analysis using generalized linear mixed models
- Logistic regression, ROC curves, and other predictive modeling techniques including random forest and deep learning
- Multivariate analysis of high dimensional omics data, primarily using PLS-DA
- Shrinkage regression techniques for model selection.
- Genome-wide association studies, including data pre-processing, imputation, and implementation of novel analysis pipelines.
- Joint modeling for longitudinal continuous glucose monitor (CGM) and time-to-event data.
- Wrote and maintained an R package for analysis of CGM data which has been downloaded approximately 20,000 times.
- Developed interactive applications in R Shiny and Python Dash.

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2015–2018 **Professional Research Assistant**, Children's Hospital Colorado, Aurora, CO.

- Managed two NIH-funded research studies.
- Recruited, screened, and obtained consent from over 190 study subjects.
- Perform all study visits and some sample processing for both studies.
- Developed a manual of procedures for all study activities and performed all regulatory processes (IRB amendments, continuing review, AE reporting, etc.).
- Responsible for all data management and entry for both studies.

Computer skills

Basic	SAS,Julia
Intermediate	python, Jupyter Notebooks, LaTeX, Linux, Parallel Computing
Advanced	R,R Markdown

Communication Skills

2019 Poster at the Advanced Technologies and Treatments for Diabetes Conference in Berlin, Germany

2017 Poster at the North American Cystic Fibrosis Conference in Indianapolis, IN

2016 Poster at the North American Cystic Fibrosis Conference in Orlando, FL

2015 Poster at the North American Cystic Fibrosis Conference in Phoenix, AZ

Interests

- Music
- Running
- Movies
- Cooking
- Reading
- Basketball

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Publications

2021 O'Donnell, Holly K. et al. (Mar. 2021). "Pump It Up! A Randomized Clinical Trial to Optimize Insulin Pump Self-Management Behaviors in Adolescents with Type 1 Diabetes". en. In: *Contemporary Clinical Trials* 102, p. 106279. ISSN: 15517144. DOI: 10.1016/j.cct.2021.106279.

2020 Berget, Cari et al. (Mar. 2020). "Six Months of Hybrid Closed Loop in the Real-world: An Evaluation of Children and Young Adults Using the 670G System". en. In: *Pediatric Diabetes* 21.2, pp. 310–318. ISSN: 1399-543X, 1399-5448. DOI: 10.1111/pedi.12962.

Messer, Laurel H. et al. (Mar. 2020). "Real World Hybrid Closed-loop Discontinuation: Predictors and Perceptions of Youth Discontinuing the 670G System in the First 6 Months". en. In: *Pediatric Diabetes* 21.2, pp. 319–327. ISSN: 1399-543X, 1399-5448. DOI: 10.1111/pedi.12971.

Ravi, Sonalee J. et al. (Mar. 2020). "Pediatric Medicaid Patients With Type 1 Diabetes Benefit From Continuous Glucose Monitor Technology". en. In: *Journal of Diabetes Science and Technology*, p. 193229682090621. ISSN: 1932-2968, 1932-2968. DOI: 10.1177/1932296820906214.

Sherk, Vanessa D et al. (Sept. 2020). "Acute Hyperinsulinemia Alters Bone Turnover in Women and Men With Type 1 Diabetes". en. In: *JBMR Plus* 4.9. ISSN: 2473-4039, 2473-4039. DOI: 10.1002/jbm4.10389.

Sopfe, Jenna et al. (Oct. 2020). "Safety and Accuracy of Factory-Calibrated Continuous Glucose Monitoring in Pediatric Patients Undergoing Hematopoietic Stem Cell Transplantation". en. In: *Diabetes Technology & Therapeutics* 22.10, pp. 727–733. ISSN: 1520-9156, 1557-8593. DOI: 10.1089/dia.2019.0521.

2019 Carreau, Anne-Marie et al. (Oct. 2019). "Clinical Prediction Score of Nonalcoholic Fatty Liver Disease in Adolescent Girls with Polycystic Ovary Syndrome (PCOS-HS Index)". en. In: *Clinical Endocrinology* 91.4, pp. 544–552. ISSN: 0300-0664, 1365-2265. DOI: 10.1111/cen.14062.

Li, Angel et al. (Jan. 2019). "Continuous Glucose Monitoring in Youth with Cystic Fibrosis Treated with Lumacaftor-Ivacaftor". en. In: *Journal of Cystic Fibrosis* 18.1, pp. 144–149. ISSN: 15691993. DOI: 10.1016/j.jcf.2018.07.010.

Shah, Viral N. et al. (June 2019). "Type 1 Diabetes Onset at Young Age Is Associated with Compromised Bone Quality". en. In: *Bone* 123, pp. 260–264. ISSN: 87563282. DOI: 10.1016/j.bone.2019.03.039.

Tommerdahl, Kalie L. et al. (Dec. 2019). "Screening for Cystic Fibrosis-related Diabetes and Prediabetes: Evaluating 1,5-anhydroglucitol, Fructosamine, Glycated Albumin, and Hemoglobin A1c". en. In: *Pediatric Diabetes* 20.8, pp. 1080–1086. ISSN: 1399-543X, 1399-5448. DOI: 10.1111/pedi.12914.

Vigers, Tim et al. (Oct. 2019). "Cgmanalysis: An R Package for Descriptive Analysis of Continuous Glucose Monitor Data". en. In: *PLOS ONE* 14.10. Ed. by Kathleen E. Bethin, e0216851. ISSN: 1932-6203. DOI: 10.1371/journal.pone.0216851.

2018 Chan, Christine L., Emma Hope, et al. (July 2018). "Hemoglobin A1c Accurately Predicts Continuous Glucose Monitoring–Derived Average Glucose in Youth and Young Adults With Cystic Fibrosis". en. In: *Diabetes Care* 41.7, pp. 1406–1413. ISSN: 0149-5992, 1935-5548. DOI: 10.2337/dc17-2419.

Chan, Christine L., Timothy Vigers, et al. (Nov. 2018). "Continuous Glucose Monitoring Abnormalities in Cystic Fibrosis Youth Correlate with Pulmonary Function Decline". en. In: *Journal of Cystic Fibrosis* 17.6, pp. 783–790. ISSN: 15691993. DOI: 10.1016/j.jcf.2018.03.008.

Simon, Stacey L. et al. (Nov. 2018). "Reduced Insulin Sensitivity Is Correlated with Impaired Sleep in Adolescents with Cystic Fibrosis". en. In: *Pediatric Diabetes* 19.7, pp. 1183–1190. ISSN: 1399543X. DOI: 10.1111/pedi.12727.

References

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