

Gregory J. Hunt

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(updated: September 1, 2023)

Positions

2021 – CAMS Applied Statistics Track Director, William & Mary

2019 – Assistant Professor, Dept. of Mathematics, William & Mary

Education

2018	PhD	Statistics	University of Michigan
2015	MA	Statistics	University of Michigan
2013	BA	Mathematics, Computer Science	Drew University

Peer-reviewed Journal Publications

* = equal authorship contributions

† = award winning

1. (2023-3) **G. J. Hunt**, R. L. Hunt, C. Marley. Review of Surrogate Strategies and Regularization with Application to High-speed Flows. *Accepted pending revisions at the ITEA Journal of Test & Evaluation*.
2. (2023-2) C. R. Ground, R. L. Hunt, **G. J. Hunt**. Obtaining quantitative gas property measurements with filtered Rayleigh scattering: A review. 2023 Meas. Sci. Technol. 34 092001 <https://doi.org/10.1088/1361-6501/acd40b>
3. (2023-1) **G. J. Hunt**, and J. A. Gagnon-Bartsch. "A Review of Containerization for Interactive and Reproducible Analysis". Journal of Data Science, Statistics, and Visualisation, vol. 2, no. 8, Mar. 2023, <https://jdssv.org/index.php/jdssv/article/view/53>. <https://doi.org/10.52933/jdssv.v3i1.53>
4. (2022-2) **G. J. Hunt**, M. A. Dane, J. E. Korkola, L. M. Heiser, J. A. Gagnon-Bartsch. Systematic Replication Enables Normalization of High-throughput Imaging Assays. Bioinformatics, Volume 38, Issue 21, 1 November 2022, Pages 4934–4940. <https://doi.org/10.1093/bioinformatics/btac606>
5. (2022-1) **G. J. Hunt**, C. R. Ground, A. D. Cutler. Adaptive Modeling Powers Fast Multi-parameter Fitting of CARS Spectra. Journal of Raman Spectroscopy 2022, 53(5), 934. <https://doi.org/10.1002/jrs.6316>
6. (2021-2) **G. J. Hunt*** and R. L. Hunt*. Locating the Isolator Shock Train Leading Edge with Limited Pressure Information. Journal of Propulsion and Power 2021 37:6, 876-892. <https://doi.org/10.2514/1.B38334>
7. (2021-1) **G. J. Hunt**, J. A. Gagnon-Bartsch. The role of scale in the estimation of cell-type proportions. Annals of Applied Statistics. Volume 15, Issue 1, March 2021, Pages 270 - 286. <https://doi.org/10.1214/20-A0AS1395>
8. †(2020-2) **G. J. Hunt**, C. Ground, R. L. Hunt. Fast Approximations of Spectral Lineshapes Enable Optimization of a Filtered Rayleigh Scattering Experiment. Measurement Science and Technology. Volume 31, Issue 9, June 2020. <https://doi.org/10.1088/1361-6501/ab8a7e>
†Outstanding Paper Award for MST's 2020 section on Optical and laser-based techniques. <https://doi.org/10.1088/1361-6501/abfc84>
9. (2020-1) **G. J. Hunt**, M. A. Dane, J. E. Korkola, L. M. Heiser, J. A. Gagnon-Bartsch. Transformations of Microenvironment Microarray Data Improves Discovery and Integration of Latent Effects. Journal of Computational and Graphical Statistics. Volume 29, Issue 4, April 2020, Pages 929-941. <https://doi.org/10.1080/10618600.2020.1741379>
10. (2019-1) **G. J. Hunt**, S. Freytag, M. Bahlo, and J. A. Gagnon-Bartsch, dtangle: accurate and robust cell type deconvolution, Bioinformatics, Volume 35, Issue 12, June 2019, Pages 2093–2099 <https://doi.org/10.1093/bioinformatics/bty926>

Manuscripts (not peer-reviewed)

11. A. Ninh, **G. J. Hunt**, D. Nguyen. Modeling Patient Recruitment from Summary Data Aggregated Across Trials. *Under Review*.

Conference Proceedings (not peer-reviewed)

12. †R. L. Hunt and **G. J. Hunt**. Adaptive Method to Locate the Isolator Shock Train Leading Edge Given Limited Pressure Information. AIAA Propulsion and Energy 2020. <https://doi.org/10.2514/6.2020-3715>
†Best Paper Award High Speed Air Breathing Propulsion Category in AIAA 2021 Propulsion and Energy Forum.
Role in collaboration: equal-contribution to manuscript writing, developed method, analyzed data

Short Courses

1. Everyday Reproducibility: Simple Flexible Tools for Making Analyses more Accessible and Reproducible. *JSM*. Aug 2023.

Talks

1. Leveraging design to remove spatial artifacts in high-throughput imaging assays. *Statistical Methods in Imaging Conference*. 2023.
2. An Analysis of Surrogate Strategies and Regularization with Application to High-Speed Flows. *Dataworks*. April 2023.
3. Modeling Strategies and Regularization: A Comparison. *Algorithms & Machine Learning group at Walgreens Boots Alliance*. February 2023.
4. Containerization for Interactive and Reproducible Analysis. *JSM*. August 2022.
5. Everyday reproducibility. *Dataworks*. April 2022.
6. Transformations and Cell-type Deconvolution. *ENAR*. March 2022.
7. Robust Re-scaling of Imaging Data to Improve Discovery of Latent Effects. *JSM*. August 2021.
8. An Adaptive Method for Shock Tracking. *Dataworks*. March 2021.
9. Finding and Removing Unwanted Spatial Effects in Microenvironment Microarray Data. *ENAR*. March 2021.
10. Transformation and Integration of Microenvironment Microarray Data *ICSA*. May 2020.
11. The Role of Scale in the Estimation of Cell-type Proportions. *IBC*. July 2020.
12. Leveraging Statistical Learning to Make Fast Approximations of Spectral Lineshapes. *FPCB Machine Learning and Technology Group, NASA Langley*. April 2020.
13. Estimation of Cell-type Proportions in Complex Tissue. *ENAR*. March 2020.
14. Estimating Cell Types in Complex Brain Tissue. *Joint Statistical Meetings*. August 2019.
15. Robust Transformation of MEMA data. *WNAR*. June 2019.
16. dtangle: accurate and fast cell type deconvolution. *William & Mary Department of Mathematics*. December 2017.
17. dtangle: a simple and fast cell type deconvolution estimator. *Joint Statistical Meetings*. August 2017.
18. dtangle: a simple and fast cell type deconvolution estimator. *Michigan Student Symposium for Interdisciplinary Statistical Sciences*. March 2017.

At William & Mary (* = student talk)

19. *Merging cross-platform gene expression data (presenter: Jiayi Xu). *Biomathematics Group*. April 2022.
20. Everyday Reproducibility. *Biomathematics Group*. March 2021.
21. Removing Unwanted Spatial Effects from MEMA data. *Biomathematics Group*. October 2020.
22. Adapting Sparse Measurements for Control of Hypersonic Vehicles. *Applied Mathematics Seminar*. September 2020.
23. Estimation of Cell-type Proportions in Complex Tissue. *Biomathematics Group*. October 2019.

24. Support Vector Spectrum Approximations. *Applied Mathematics Seminar*. September 2019.
25. Deconvolution and Transformation. *Biostatistics Group*. November 2018.

Grants

1. Department of Defense/Air Force Office of Scientific Research: "HyperStats: Statistical Training for Interdisciplinary Hypersonics" Sept. 2023 - August 2024. Role: PI. Amount: \$58,445.
2. William & Mary: Faculty Research Grant. "Interpretable Feature Engineering for Bioimaging Data." June - September 2023. Role: PI. Amount: \$5,000.
3. Virginia Space Grant Consortium: Innovative Proposals in Education. "Summer Collaborative Bridge: Connecting Student Summer Research Experiences Across Academic and Industry." June - December, 2023. Role: PI (with Rex Kincaid). Amount: \$8,000.
4. Department of Defense/Air Force Office of Scientific Research: "HyperStats: Statistical Training for Interdisciplinary Hypersonics" Sept. 2022 - August 2023. Role: PI. Amount: \$49,958.00.
5. Virginia Space Grant Consortium: Innovative Proposals in Education. "Summer Collaborative Bridge: Connecting Student Summer Research Experiences Across Academic and Industry." June - December, 2022. Role: PI (with Rex Kincaid). Amount: \$16,000.
6. Virginia Space Grant Consortium: Innovative Proposals in Education. "Summer Collaborative Bridge: Connecting Student Summer Research Experiences Across Academic and Industry." June - December, 2021. Role: PI (with Rex Kincaid). Amount: \$7,000.
7. William & Mary: Pre-Tenure Summer Grant. "Finding and Removing Unwanted Spatial Effects in Breast Cancer Experiments." June - September 2021. Role: PI. Amount: \$4,000.
8. Virginia Space Grant Consortium: Innovative Proposals in Education. "Summer Collaborative Bridge: Connecting Student Summer Research Experiences Across Academic and Industry." June - October 2020. Role: PI (with Rex Kincaid). Amount: \$6,558.
9. Virginia Space Grant Consortium: New Investigator Program. "Using Machine Learning to Efficiently Model Filtered Rayleigh Scattering." May 2019 - April 2020. Role: PI. Amount: \$20,000.

Awards

1. Simon Prize for Excellence in the Teaching of Mathematics. William & Mary, Department of Mathematics, 2022.
2. Best Paper Award for "Adaptive Pressure Profile Method to Locate the Isolator Shock Train Leading Edge Given Limited Pressure Information". American Institute of Aeronautics and Astronautics (AIAA) High Speed Air Breathing Propulsion Category in AIAA 2021 Propulsion and Energy Forum. August 2021.
3. Outstanding Paper Award for 2020 in the field of Optical and laser-based techniques for "Fast approximations of spectral lineshapes to enable optimization of a filtered Rayleigh scattering experiment". Given by Measurement Science and Technology. 2021. <https://doi.org/10.1088/1361-6501/abfc84>
4. Member of winning group for Michigan Institute for Data Science 2020 Reproducibility Challenge. Category B: Exact Reproducibility winner. 2020.
5. Outstanding Graduate Student Instructor. University of Michigan, Department of Statistics. 2016.

Software (not peer-reviewed)

R Packages (CRAN)

1. `rrscale`: Robust re-scaling to improve recovering of latent effects.
<https://cran.r-project.org/package=rrscale>
<https://gjhunt.github.io/rr/>
2. `dtangle`: Cell type deconvolution for high-throughput gene profiling technologies.
<https://cran.r-project.org/package=dtangle>
<https://gjhunt.github.io/dtangle>

R Packages (Github)

3. `memaNorm`: Normalization of Microenvironment Microarray Data using design-based approach.
https://gjhunt.github.io/mema_norm/
4. `hspe`: Hybrid-Scale Proportion Estimation.
<https://gjhunt.github.io/hspe>
5. `dtangle.data`: annotated collection of high-throughput genomic data for deconvolution.
<https://gjhunt.github.io/dtangle/>

Python Packages (PyPI)

5. `app`: Adaptive Pressure Profile shock train tracking.
<https://gjhunt.github.io/app>
<https://pypi.org/project/app-stle/>
6. `svsa`: A python package for creating quick and accurate approximations of any spectral lineshapes model.
<https://gjhunt.github.io/svsa>
<https://pypi.org/project/svsa/>
7. Contributor to `glmm` in `statsmodels`: statistical modeling and econometrics in Python.
<https://github.com/statsmodels/statsmodels>

Docker Images

8. `mwe`: Minimum working examples of reproducible analyses using Docker.
<https://hub.docker.com/r/gjhunt/mwe>

Teaching

William & Mary

Semester	Course	Name	Open Course Materials
Fall 23	MATH 455/555	Statistical Learning	https://gjhunt.github.io/455fall23
Fall 23	MATH 452/552	Mathematical Statistics	https://gjhunt.github.io/455fall23
Fall 22	MATH 455/555	Statistical Learning	https://gjhunt.github.io/455fall22
Fall 22	MATH 452/552	Mathematical Statistics	https://gjhunt.github.io/452fall22
Fall 22	MATH 300	Mathematical Sciences Writing	
Spring 22	MATH 451/551 (x2)	Probability	https://gjhunt.github.io/451spring22
Spring 22	MATH 452/552	Mathematical Statistics	https://gjhunt.github.io/452spring22
Spring 22	MATH 300	Mathematical Sciences Writing	
Fall 21	MATH 451/551 (x2)	Probability	https://gjhunt.github.io/451fall2021/
Fall 21	MATH 300	Mathematical Sciences Writing	
Spring 21	MATH 452/552	Mathematical Statistics	https://gjhunt.github.io/452spring2021/
Spring 21	CSCI 688	Data Mining	https://gjhunt.github.io/688spring2021/
Spring 20	MATH 300	Mathematical Sciences Writing	
Fall 20	MATH 300	Mathematical Sciences Writing	
Fall 20	MATH 451/551 (x2)	Probability	https://gjhunt.github.io/451fall2020
Spring 20	CSCI 708	Research Project in COR	
Spring 20	MATH 451/551 (x2)	Probability	https://gjhunt.github.io/451spring2020
Fall 19	CSCI 690	Readings in Computer Science	
Fall 19	MATH 459	Data Mining	
Fall 19	MATH 452/552	Mathematical Statistics	
Spring 19	CSCI 688	Data Mining	
Spring 19	MATH 451/551	Probability	

Univerisity of Michigan (as teaching assistant)

Summer 17		Big Data Summer Institute
Winter 17	STATS 415 (x2)	Data Mining and Statistical Learning
Fall 16	STATS 408 (x2)	Statistical Principles for Problem Solving: A Systems Approach.
Winter 16	STATS 408 (x2)	Statistical Principles for Problem Solving: A Systems Approach.
Fall 15	STATS 403 (x2)	Introduction to Quantitative Research Methods
Winter 15	STATS 485 (x2)	Capstone Seminar
Fall 14	STATS 250 (x2)	Introduction to Statistics and Data Analysis
Summer 14	STATS 250	Introduction to Statistics and Data Analysis
Winter 14	STATS 250 (x2)	Introduction to Statistics and Data Analysis
Fall 13	STATS 250 (x2)	Introduction to Statistics and Data Analysis

Mentoring

** = External Funded Summer Research

* = Internal Funded Summer Research

★ = Honors Thesis

Name	Funding Source	Dates	Co-Advisor
<i>Masters</i>			
Diep Nguyen		09/2022 – 05/2022	Anh Ninh
**Cassandra Chang	VSGC	4/2019 – 5/2020	
<i>Undergraduate</i>			
**Andrew Lee	VSGC	05/2023 – 08/2023	
**Ben Kim	DoD	05/2023 – 08/2023	
**Nicholas Reeder	DoD	05/2023 – 08/2023	
**Lydia Pelham	DoD	05/2023 – 08/2023	
Xinyi Wang		03/2022 – 08/2022	
*John Pendergrass	Monroe Scholar	02/2022 – 08/2022	
★Jiayi Xu		01/2022 – 05/2023	
Ben Sharrer		09/2021 – 01/2022	
**Owen Guch	VSGC	04/2021 – 05/2023	
**Brian Lorn	VSGC	03/2021 – 08/2021	
*Ray Shen	Charles Center	02/2021 – 08/2021	
**★Isabel Agostino	VSGC	04/2020 05/2022	
*Alison Reynolds	Charles Center	01/2020 – 05/2021	
** Eli Gnesin	VSGC	06/2020 – 08/2020	Rex Kincaid
*★Grace Smith	Charles Center	01/2020 – 05/2022	
Alan Song		11/2019 – 5/2020	
Bin Yang		09/2019 – 12/2019	
Chris Elsner		01/2019 – 04/2019	
**Evan Wong	EXTREEMS-QED	03/2018 – 07/2018	

Highschool

**Josephine Chang	DoD	05/2023 – 08/2023
**Evan Grabarczyk	DoD	05/2023 – 08/2023
**Aden Alexander	DoD	05/2023 – 08/2023

Thesis Committees

Min Guo	Member	Undergraduate Honors Defense	Spring 2023
Jiayi Xu	Chair	Undergraduate Honors Defense	Spring 2023
Owen Guch	Chair	Undergraduate Honors Defense	Spring 2023
Zhurong Mao	Member	Undergraduate Honors Defense	Fall 2022
Ethan Hackett	Member	Undergraduate Honors Defense	Fall 2022
Grace Smith	Chair	Undergraduate Honors Defense	Spring 2022
Isabel Agostino	Chair	Undergraduate Honors Defense	Spring 2022
Alison Reynolds	Chair	Undergraduate Honors Defense	Spring 2021
Maliha Ahmad	Member	Undergraduate Honors Defense	Spring 2019

Academic Advising

Major	23
Pre-major	21
Total	44

Professional Activities

Memberships

- American Statistical Association
- Institute of Mathematical Statistics

Conference Sessions

- “Everyday Reproducibility: Simple Flexible Tools for Making Analyses more Accessible and Reproducible.” Short Course Instructor JSM. Aug 2023.
- “A Multi-disciplinary View of Reproducibility”, Co-Organizer. 2022. JSM
- “Imaging in High-throughput -omics”, Co-Organizer and Chair. 2019. WNAR.

Journal Referee

- ITEA Journal of Test and Evaluation
- Genome Biology
- Briefings in Bioinformatics
- Bioinformatics
- Inflammatory Bowel Diseases
- GigaScience
- PLOS Computational Biology
- Journal of Healthcare Engineering
- Computational and Structural Biotechnology Journal

Service

Departmental Service

1. Department Research Outlook Committee (Spring 23)
2. Statistics TTE Hiring Committee (Fall 2022)
3. Applied Statistics Track Director for CAMS major (Summer 2021 –)
4. Merit Evaluation Committee (2021-2022)
5. Applied Mathematics Seminar Organizer (Fall 2019, Fall 2020)
6. Pre-major Advisor (Fall 2019, Fall 2020, Fall 2021)
7. Computers (2019-2020, 2020-2021, 2021-2022, 2022-2023)

Collegewide Service

1. VIMS Hiring Consulting (Spring 2022)
2. Data science steering committee (Spring 2019 - Spring 2021)
3. Data science hiring committee (Spring 2021)
4. Math/Data science hiring committee (Spring 2019)