Gregory J. Hunt

updated: September 27, 2022

Department of Mathematics
William & Mary
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200 Ukrop Way
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Positions

2019 –	Assistant Professor	Department of Mathematics, William & Mary

Education

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

Publications

* = equal authorship contributions
† = award winning

Peer-reviewed Journal Publications

1. (2022-3) **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. *Accepted and to appear.* Bioinformatics. 2022.
   https://doi.org/10.1093/bioinformatics/btac606
   Role in collaboration: wrote manuscript, developed method, analyzed data

2. (2022-2) **G. J. Hunt** and Johann A. Gagnon-Bartsch. A Review of Containerization for Interactive and Reproducibile Analysis. *Accepted and to appear.* The Journal of Data Science, Statistics, and Visualisation. 2022.
   http://arxiv.org/abs/2103.16004
   Role in collaboration: wrote manuscript, wrote code and workflows

3. (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
   Role in collaboration: wrote manuscript, developed method, analyzed data

4. (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
   Role in collaboration: equal-contribution to manuscript writing, developed method and analyzed data

5. (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-AOAS1395
   Role in collaboration: wrote manuscript, developed method, analyzed data

6. (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
   Role in collaboration: wrote manuscript, developed method, analyzed data
   †Outstanding Paper Award for MST's 2020 section on Optical and laser-based techniques.https://doi.org/10.1088/1361-6501/abfc84

7. (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
   Role in collaboration: wrote manuscript, developed method, analyzed data

8. (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
   Role in collaboration: wrote manuscript, developed method, analyzed data

Conference Proceedings (not peer-reviewed)

9. †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
   Role in collaboration: equal-contribution to manuscript writing, developed method, analyzed data
   †Best Paper Award High Speed Air Breathing Propulsion Category in AIAA 2021 Propulsion and Energy Forum.

Talks

1. Containerization for Interactive and Reproducible Analysis. *JSM*. August 2022.
2. Everyday reproducibility. *Dataworks*. April 2022.
3. Transformations and Cell-type Deconvolution. *ENAR*. March 2022. Virtual.
4. Robust Re-scaling of Imaging Data to Improve Discovery of Latent Effects. *JSM*. August 2021. Virtual.
5. An Adaptive Method for Shock Tracking. *Dataworks*. March 2021. Virtual.
6. Finding and Removing Unwanted Spatial Effects in Microenvironment Microarray Data. *ENAR*. March 2021. Virtual.
7. Transformation and Integration of Microenvironment Microarray Data *ICSA*. May 2020. Virtual.
8. The Role of Scale in the Estimation of Cell-type Proportions. *IBC*. July 2020. Virtual.
9. Leveraging Statistical Learning to Make Fast Approximations of Spectral Lineshapes. *FPCB Machine Learning and Technology Group, NASA Langley*. April 2020. Virtual.
10. Estimation of Cell-type Proportions in Complex Tissue. *ENAR*. March 2020. Virtual.
11. Estimating Cell Types in Complex Brain Tissue. *Joint Statistical Meetings*. August 2019. Denver, CO.
12. Robust Transformation of MEMA data. *WNAR*. June 2019. Portland, OR.
13. dtangle: accurate and fast cell type deconvolution. *William & Mary Department of Mathematics*. December 2017. Williamsburg, VA.
14. dtangle: a simple and fast cell type deconvolution estimator. *Joint Statistical Meetings*. August 2017. Baltimore, MD.
15. dtangle: a simple and fast cell type deconvolution estimator. *Michigan Student Symposium for Interdisciplinary Statistical Sciences*. March 2017. Ann Arbor, MI.

At William & Mary

16. Everyday Reproducibility. *Biomathematics Group*. March 2021.
17. Removing Unwanted Spatial Effects from MEMA data. *Biomathematics Group*. October 2020.
18. Adapting Sparse Measurements for Control of Hypersonic Vehicles. *Applied Mathematics Seminar*. September 2020.
19. Estimation of Cell-type Proportions in Complex Tissue. *Biomathematics Group*. October 2019.
20. Support Vector Spectrum Approximations. *Applied Mathematics Seminar*. September 2019.
21. Deconvolution and Transformation. *Biomathematics Group*. November 2018.

Grants

1. 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.
2. 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.
3. 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.
4. William & Mary: Pre-Tenure Summer Grant. "Finding and Removing Unwanted Spatial Effects in Breast Cancer Experiments." June - September 2021. Role: PI. Amount: $4,000.
5. 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.
6. 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

Fall 22	MATH 455/555	Statistical Learning
Fall 22	MATH 452/552	Mathematical Statistics
Spring 22	MATH 451/551 (x2)	Probability
Spring 22	MATH 452/552	Mathematical Statistics
Spring 22	MATH 300	Mathematical Sciences Writing
Fall 21	MATH 451/551 (x2)	Probability
Fall 21	MATH 300	Mathematical Sciences Writing
Spring 21	MATH 452/552	Mathematical Statistics
Spring 21	CSCI 688	Data Mining
Fall 20	MATH 300	Mathematical Sciences Writing
Fall 20	MATH 451/551 (x2)	Probability
Spring 20	MATH 300	Mathematical Sciences Writing
Spring 20	CSCI 708	Research Project in COR
Spring 20	MATH 451/551 (x2)	Probability
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

* = Internal Funded Summer Research
** = External Funded Summer Research

Masters

Diep Nguyen	Research Project w/ A. Ninh	09/2022 – 05/2022
Cassandra Chang**	VSGC Project	4/2019 – 5/2020

Undergraduate

Xinyi Wang	Research Project	03/2022 – 08/2022
John Pendergrass	Monroe Research*	02/2022 – 08/2022
Jiayi Xu	Honors Thesis	01/2022 –
Ben Sharrer	Research Project	9/2021 – 01/2022
Owen Guch**	VSGC Honors Thesis	4/2021 –
Brian Lorn**	VSGC Project	3/2021 – 8/2021
Ray Shen*	Charles Center	2/2021 – 8/2021
Isabel Agostino**	VSGC Project, Honors Thesis	4/2020 05/2022
Alison Reynolds*	Charles Center, Honors Thesis	1/2020 – 05/2021
Eli Gnesin**	VSGC Project w/ R. Kincaid	6/2020 - 8/2020
Grace Smith*	Charles Center, Honors Thesis	1/2020 05/2022
Alan Song	Research Project	11/2019 – 5/2020
Bin Yang	Research Project	9/2019 – 12/2019
Chris Elsner	Research Project	1/2019 – 4/2019

Thesis Committees

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

Major Advising

Major	Cumul. Count
CAMS	5
Mathematics	7
Pre-major	16
Total	28

Professional Activities

Memberships

- American Statistical Association
- Institute of Mathematical Statistics

Conference Sessions Organized

- “Imaging in High-throughput -omics”, Co-Organizer and Chair. 2019. WNAR.
- “A Multi-disciplinary View of Reproducibility”, Co-Organizer. 2022. JSM

Journal Referee

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

Committees

Departmental Service

1. Statistics TTE Hiring Committee (Fall 2022)
2. Applied Statistics Track Director for CAMS major (Summer 2021 –)
3. Merit Evaluation Committee (2021-2022)
4. Applied Mathematics Seminar Organizer (Fall 2019, Fall 2020)
5. Pre-major Advisor (Fall 2019, Fall 2020, Fall 2021)
6. 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 TE hiring committee (Spring 2021)
4. Math/Data science NTE hiring committee (Spring 2019)