

*Résumé*  
**Adam G. Craig**  
**January, 2025**

**Personal Details:**

Nationality: USA

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GitHub: <https://github.com/adamgcraig>

Dissertation: <https://www.proquest.com/openview/463ae83a0b8c7f1263a67b41415547d0/1>

GitHub repository for Memory Biased Random Walk code:

<https://github.com/DrexelSystemsImmunologyLab/MBRWSpectralDimensionPublic>

**Education:**

**Degree:** Ph.D.

**Major:** Biomedical Engineering

**Concentration:** Bioinformatics

**Start date:** 2014-09-22

**End date:** 2022-03-19

**Institution:** Drexel University

**Department:** School of Biomedical Engineering, Science, and Health Systems

**Advisor:** Dr. Uri Hershberg

**Dissertation:** *Understanding How Time and Memory Interact with Network Topology in Real-World Systems with Selected Applications*

**Degree:** M.Sc.

**Major:** Biomedical Engineering

**Concentration:** Bioinformatics

**Start date:** 2014-09-22

**End date:** 2020-06-13

**Institution:** Drexel University

**Department:** School of Biomedical Engineering, Science, and Health Systems

**Degree:** B.Sc.

**Major:** Computer Science

**Start date:** 2002-09-30

**End date:** 2007-06-08

**Institution:** California Institute of Technology

## **Employment history:**

**Company name:** Center for Nonlinear Studies, Dept. of Physics, Hong Kong Baptist University

**Title:** Postdoctoral associate

**Start date:** 2022-02-21

**End date:** 2025-02-15

**Briefly describe your duties and responsibilities:** Development of machine learning methods that can fit a whole-brain model to fMRI data and predict how stimulation from therapies such as rTMS and tDCS will propagate through the brain and affect functional connectivity.

**Supervisor:** Dr. Changsong Zhou

**Company name:** Drexel University School of Biomedical Engineering, Science, & Health Systems

**Title:** Teaching assistant

**Start date:** 2017-09-17

**End date:** 2021-12-16

**Briefly describe your duties and responsibilities:** Grading homework, holding office hours, proctoring exams, mainly in computational biology college undergraduate- and graduate-level courses; developing and improving a spreadsheet-based approach to grading assignments that allowed for more consistent awarding and deduction of points and feedback on specific mistakes and good and bad practices along with a script to compile a point total and feedback report for each student.

**Supervisors:** Uri Hershberg (BMES 310), Fred Allen & Joseph Sarver (BMES 241), Ahmet Saçan (all other courses)

**Company name:** Educating Young Minds Tutorial Services, Inc.

**Title:** Teacher

**Start date:** 2007-09-01

**End date:** 2014-08-01

**Briefly describe your duties and responsibilities:** providing both group and individualized instruction in STEM and English-language writing to K-12 (mostly High School) students

**Supervisor:** Matthew Budd (until July 2014), Kevin Connor (July, August 2014)

**Company name:** Quicksilver Mirror, LLC

**Title:** Contributing software developer

**Start date:** 2009-09-01

**End date:** 2014-09-01

**Briefly describe your duties and responsibilities:** debugging, improving performance of, and adding features to the Mind Mirror Profiler personality testing web application, including maintaining Facebook integration during breaking changes to the FB Graph API

**Supervisor:** Edward Craig

**Company name:** Educating Young Minds Tutorial Services, Inc.

**Title:** Software developer

**Start date:** 2009-09-01

**End date:** 2014-09-01

**Briefly describe your duties and responsibilities:** developing EYMLive video conferencing virtual classroom web application from original concept through multiple iterations to soft launch and drafting specifications for on-site IT infrastructure needed for its deployment

**Supervisor:** Angeles Echols

**Company name:** California Institute of Technology

**Title:** Managing editor of *the California Tech* student newspaper

**Start date:** 2005-04-01

**End date:** 2006-02-01

**Briefly describe your duties and responsibilities:** recruiting and staffing, setting pay rates, copy editing, writing editorials

**Supervisors:** N/A

**Company name:** Water and Carbon Cycles Group, Jet Propulsion Laboratory

**Title:** Research assistant

**Start date:** 2003-06-01

**End date:** 2005-07-01

**Briefly describe your duties and responsibilities:** cataloging and visualizing radar scatterometry data

**Supervisor:** Dr. Kyle McDonald

**Individual courses for which I served as TA:**

**Fall Quarter (September-December) 2020-2021:** BMES 546 Biocomputational Languages, BMES 550 Advanced Biocomputational Languages

**Spring Quarter (April-June) 2020-2021:** BMES 201 Programming and Modeling for Biomedical Engineers I, BMES 483/543 Quantitative Systems Biology, BMES 678 Computational Methods in Biosimulation

**Winter Quarter (January-March) 2020-2021:** BMES 484/544 Genome Information Engineering, BMES 547 Machine Learning in Biomedical Applications

**Fall Quarter (September-December) 2020-2021:** BMES 546 Biocomputational Languages, BMES 550 Advanced Biocomputational Languages

**Summer Quarter (July-August) 2019-2020:** BMES 241 Modeling & Design I

**Spring Quarter (April-June) 2019-2020:** BMES 673 Biosimulation II

**Winter Quarter (January-March) 2019-2020:** BMES 484/544 Genome Information Engineering, BMES 547 Machine Learning in Biomedical Applications

**Fall Quarter (September-December) 2019-2020:** BMES 201 Programming and Modeling for Biomedical Engineers I, BMES 546 Biocomputational Languages, BMES 550 Advanced Biocomputational Languages

**Fall Quarter (September-December) 2018-2019:** BMES 201 Programming and Modeling for Biomedical Engineers I

**Summer Quarter (June-August) 2017-2018:** BMES 310 Biomedical Statistics

**Spring Quarter (April-June) 2017-2018:** BMES 201 Programming and Modeling for Biomedical Engineers I

**Winter Quarter (January-March) 2017-2018:** BMES 375 Computational Bioengineering  
**Fall Quarter (September-December) 2017-2018:** BMES 201 Programming and Modeling for Biomedical Engineers I, BMES 546 Biocomputational Languages, BMES T680 Special Topics in BMES

### **Publications:**

Adam Craig, Adarsh Ambati, Mesut Yücel, Lev Muchnik, Uri Hershberg (2022) **Impact of finite size effect on applicability of generalized fractal and spectral dimensions to biological networks** published in *Chaos, Solitons & Fractals* Volume 164, November 2022, 112707

Adam Craig (2022) *Understanding How Time and Memory Interact with Network Topology in Real-World Systems with Selected Applications* (Doctoral dissertation, Drexel University).  
<https://www.proquest.com/openview/463ae83a0b8c7f1263a67b41415547d0/1>

Adam Craig, Adarsh Ambati, Shiladitya Dutta, Pooja Kowshik, Sathvik Nori, S. Koby Taswell, Qiyuan Wu, Carl Taswell (2019) **DREAM Principles and FAIR Metrics from the PORTAL-DOORS Project for the Semantic Web** published in Proceedings of the 11<sup>th</sup> International Conference on Electronics, Computers, and Artificial Intelligence (ECAI) in Pitesti, Romania

Adam Craig, Adarsh Ambati, Shiladitya Dutta, Arush Mehrotra, Carl Taswell (2019) **Definitions, Formulas, and Simulated Examples for Plagiarism Detection with FAIR Metrics**, published in Proceedings of the Association for Information Science & Technology 82nd Annual Meeting in Melbourne, Australia

Adam Craig, Carl Taswell (2018) **Formulation of FAIR Metrics for Primary Research Articles**, published in Proceedings of the IEEE International Conference on Bioinformatics and Biomedicine (BIBM) in Madrid, Spain

Adam Craig, Carl Taswell (2018) **The FAIR Metrics of Adherence to Citation Best Practices**, published in Proceedings of the Workshop on Informetric and Scientometric Research (SIG/MET) in Vancouver, Canada

Adam Craig, Seung-Ho Bae, Carl Taswell (2017) **Message Exchange between Independent Implementations of Servers in the Nexus-PORTAL-DOORS System**, published in Proceedings of the 10<sup>th</sup> International Semantic Web for Healthcare and Life Sciences (SWAT4HCLS) Conference in Rome, Italy

Adam Craig, Seung-Ho Bae, Carl Taswell (2017) **Bridging the Semantic and Lexical Webs: Concept Validating and Hypothesis-Exploring Ontologies for the Nexus-PORTAL-DOORS System**, published in *WMSCI-BMIC 2017 Proceedings: CD and Vol. 2* and *Journal of Systemics, Cybernetics and Informatics* Volume 15, Number 5 Year 2017

Adam Craig, Seung-Ho Bae, Teja Veeramacheneni, S Kobi Taswell, Carl Taswell (2016) **Web Service APIs for Scribe Registrars, Nexus Diristries, PORTAL Registries, and DOORS**

**Directories in the NPD System**, published in Proceedings of the 9<sup>th</sup> International Semantic Web for Life Sciences (SWAT4LS) Conference in Amsterdam, Netherlands

Martin Skarzynski, Adam Craig, Carl Taswell, (2015), **SOLOMON: An Ontology for Sensory-Onset, Language-Onset and Motor-Onset Dementias**, published in the proceedings of the IEEE International Conference on Bioinformatics and Biomedicine (BIBM) in Washington DC.

#### **Live oral presentations:**

Adam Craig, Sida Chen, Qianyu Tang, Changsong Zhou (December 2024), **Balancing preservation of functional connectivity with discovery of regional heterogeneity in personalized whole-brain Ising models** presented at the 9th International Conference on Cognitive Neurodynamics in Kowloon Tong, Hong Kong

Adam Craig, Anousha Athreya, Carl Taswell (October 2023), **Human error: reference out of scope** presented at the 3rd Workshop on E-science Research Leading to Negative Results held in Limassol, Cyprus

Adam Craig, Carl Taswell (2018) **Formulation of FAIR Metrics for Primary Research Articles** presented at the at the SEPDA 2018 workshop, part of the IEEE International Conference on Bioinformatics and Biomedicine (BIBM) in Madrid, Spain

Adam Craig, Mesut Yücel, Lev Muchnik, Uri Hershberg (2018) **Inferring Network Structure from Memory Biased Walks** presented as part of the 3-Minute Thesis event at the 2<sup>nd</sup> Annual Drexel Emerging Graduate Scholars Conference in Philadelphia, Pennsylvania

Adam Craig, Seung-Ho Bae, Carl Taswell (2017) **Message Exchange between Independent Implementations of Servers in the Nexus-PORTAL-DOORS System** presented at the 10<sup>th</sup> International Semantic Web for Healthcare and Life Sciences (SWAT4HCLS) Conference in Rome, Italy

Adam Craig, Seung-Ho Bae, Teja Veeramacheneni, S Kobi Taswell, Carl Taswell (2016) **Web Service APIs for Scribe Registrars, Nexus Diristries, PORTAL Registries, and DOORS Directories in the NPD System** presented at the 9<sup>th</sup> International Semantic Web for Life Sciences (SWAT4LS) Conference in Amsterdam, Netherlands

Martin Skarzynski, Adam Craig, Carl Taswell, (November 2015), **SOLOMON: An Ontology for Sensory Onset, Language-Onset and Motor-Onset Dementias** presented at the IEEE International Conference on Bioinformatics and Biomedicine in Washington, DC.

#### **Recorded oral presentations:**

Adam Craig, Mesut Yücel, Lev Muchnik, Uri Hershberg (2021) **Comparing network complexity using random walk and memory biased random walk (MBRW) spectral dimension and multi-spectrality** presented at the 2021 NHLBI Systems Biology Symposium virtual-only conference

Adam Craig, Seung-Ho Bae, Carl Taswell (2017) **Bridging the Semantic and Lexical Webs: Concept Validating and Hypothesis-Exploring Ontologies for the Nexus-PORTAL-DOORS System** presented in the virtual sessions of the Special Track on Bio- and Medical Informatics and Cybernetics (BMIC) of the 21<sup>st</sup> Multi-conference on Systemics, Cybernetics and Informatics: WMSCI 2017, Orlando, Florida

#### **Poster presentations:**

Adam Craig, Carl Taswell (September 2024), **FAIR Metrics for motivating excellence in peer review** presented at the 2024 20th International Conference on e-Science in Osaka, Japan

Adam Craig, Anousha Athreya, Carl Taswell (October 2023), **Example evaluations of plagiarism cases using FAIR Metrics and the PDP-DREAM Ontology** presented at the 2023 19th International Conference on e-Science in Limassol, Cyprus

Adam Craig, Zhaohua Lin, Changsong Zhou (August 2023), **An evaluation of personalized linear and non-linear dynamical models of human brain BOLD activity** presented at the StatPhysHK 2023, a satellite meeting of The XXVIII IUPAP International Conference on Statistical Physics in Kowloon Tong, HK

Uri Hershberg, Mesut Yücel, Adam Craig, Lev Muchnik (June 2017), **Comparison of measures of fractal dimension of networks and their applicability to an immune signaling network** presented at the Batsheva de Rothschild Seminar on: Stochasticity and Control in the Dynamics and Diversity of Immune Repertoires Group Conference in Jerusalem, Israel

Adam Craig, Uri Hershberg, (June 2016), **Mitochondrial Codon Usage is Highly Conserved but Not for Efficient Translation by Mitochondrial tRNAs** presented at the United Mitochondrial Disease Foundation Symposium in Seattle, WA

Adam Craig, Uri Hershberg, (April 2016), **Usage of codons other than those most easily recognized by mitochondrially encoded tRNA is highly conserved at numerous loci in the mitochondrial genome** presented at the NHLBI/NIDDK Mitochondrial Biology Symposium in Bethesda, MA

#### **Fellowships and awards:**

October 2016 – October 2017, Boren Fellowship, National Security Education Program  
October 2016 – October 2017, Louis and Bessie Stein Family Fellowship, Drexel University  
September 2015 – June 2016, Koerner Family Fellowship, Drexel University