

Mathieu Bray

PH.D. CANDIDATE · DEPARTMENT OF BIostatISTICS · UNIVERSITY OF MICHIGAN SCHOOL OF PUBLIC HEALTH

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Education

University of Michigan

Ann Arbor, MI, USA

PH.D. IN BIostatISTICS - CGPA: 4.00/4.00

2012 - Present

- Advisor: [Peter X-K. Song](#)
- Achieved Candidacy - June 2015
- Expected Completion - December 2018

McGill University

Montreal, QC, Canada

B.Sc. JOINT HONOURS IN STATISTICS AND COMPUTER SCIENCE - CGPA: 3.83/4.00

2009 - 2012

- [Distinction](#) - Top 25% of graduating class
- First Class Honours - CGPA above 3.5
- Deans Honour List - 2010-2011 & 2009-2010 academic years

Test Scores: GRE (2011) Analytical - 4.0/6.0 Quantitative - 169/170 Verbal - 161/170

Experience

University of Michigan

Ann Arbor, MI, USA

GRADUATE STUDENT RESEARCH ASSISTANT - KIDNEY EPIDEMIOLOGY AND COST CENTER

2012 - Present

- Assisted the [Kidney-Paired Donation](#) simulation group at the [Kidney Epidemiology and Cost Center](#) with investigations on optimization strategies in paired donation, as well as development of visualization software for paired donation networks.
- Contact: [Peter X-K. Song](#), Professor & [Jack \(John D.\) Kalbfleisch](#), Professor Emeritus, Dept. of Biostatistics, University of Michigan

McGill University Health Centre

Montreal, QC, Canada

ENDMS SUMMER STUDENT - NEUROEPIDEMIOLOGY RESEARCH UNIT

2011

- Provided research and analysis on general practitioner preferences in managing care for multiple sclerosis patients.
- Contact: [Christina Wolfson](#), Professor, Faculty of Medicine, McGill University

McGill University

Montreal, QC, Canada

BIostatISTICS SUMMER INTERN - DEPT. OF EPIDEMIOLOGY, BIostatISTICS & OCCUPATIONAL HEALTH

2010

- Selected for the inaugural cohort of Undergraduate Summer Internships within the biostatistics division.
- Assisted with preparation of a literature review on the relation between family responsibilities and gender to the productivity and career satisfaction of medical faculty, as well as the release of a software package for optimal dynamic treatment regimes.
- Contact: [Erica E. M. Moodie](#), Associate Professor, Dept. of Epidemiology, Biostatistics & Occupational Health, McGill University

Committee Membership

BFF5 - Fifth Bayesian, Fiducial & Frequentist Conference

Ann Arbor, MI, USA

MEMBER, ORGANIZING COMMITTEE

2017 - 2018

- Member of the organizing committee for the Fifth Bayesian, Fiducial and Frequentist (BFF5) Conference (May 6-9, 2018), primarily responsible for drafting and sending speaker invitations, maintaining the conference website, and scheduling committee meetings.
- Contact: [Peter X-K. Song](#), Professor, Department of Biostatistics, University of Michigan

MSSISS - Michigan Student Symposium for Interdisciplinary Statistical Sciences

Ann Arbor, MI, USA

BIostatISTICS REPRESENTATIVE, ORGANIZING COMMITTEE

2014 - 2015

- Organized, advertised and hosted [MSSISS 2015](#) (March 20, 2015).
- Selected student speakers, judged the student oral presentation competition, coordinated with the keynote speaker, and helped select the keynote speaker for the following year's event.
- Contact: [Timothy D. Johnson](#), Professor, Department of Biostatistics, University of Michigan

Consulting

University of Michigan NCAA Div-I Men's Ice Hockey

Ann Arbor, MI, USA

VOLUNTEER STUDENT STATISTICAL CONSULTANT

2015 - 2018

- Provided statistical consultation and analysis for the University of Michigan Wolverines men's hockey team, including season-long video tracking and data collection, data management and visualization, and simulation-based analysis and visualization of historical NCAA team-level trends.
- Contact: [Evan Hall](#), Video Coordinator, University of Michigan Men's NCAA Div-I Ice Hockey

Grants

- 2018-2019 **DiDi Chuxing** Wearable Devices to Monitor Driver's Adverse Health Conditions and Operational Safety (18-PAF08362) *Co-Investigator*
- 2016-2020 **National Institutes of Health** Optimization and Simulation of Kidney Paired Donation Programs - Renewal (R01-DK093513-05) *Co-Investigator*

Distinctions

- 2012-2013 **Postgraduate Scholarship (Master's) PGS M NSERC**
- 2012-2013 **Alexander Graham Bell Canada Graduate Scholarship (Master's) CGS M NSERC** *Declined*
- 2012-2013 **Bourse de Maitrise (Master's Scholarship) B1 FQRNT** *Declined*
- 2011 **endMS Summer Studentship Award Multiple Sclerosis Society of Canada**
- 2011-2012 **Sir Edward Beatty Memorial Scholarship McGill University**
- 2009-2010 **J.W. McConnell Scholarship McGill University**

Skills

COURSES

- Probability & Distribution Theory, Biostatistical Inference, Large Sample Theory
- Linear Regression, Generalized Linear Models, Linear Mixed Models
- Analysis of Repeated Measures, Longitudinal Analysis
- Categorical Data Analysis
- Stochastic Processes
- Survival Analysis
- Modern Statistical Computing (Statistical Optimization, Penalized Regression, Advanced Bayesian Computation)
- Data Mining & Machine Learning (Dimension Reduction, Classification, Clustering, Graphical Models)

TECHNICAL EXPERTISE

- Extensive experience with R (including application development using Shiny), C++ (including GUI programming with Qt)
- Moderate experience with C, Java, MATLAB, Python, SAS, SQL (including MySQL) & Tableau
- Familiarity with MapReduce framework (e.g. Hadoop, Pig, Spark) in controlled settings

LANGUAGES

- English (written and oral)
- Français (écrit et verbal)

Presentations

ORAL PRESENTATIONS

- 2018 **JSM** - Online Non-Negative Tensor Decomposition with Application to Kidney Paired Donation *Vancouver, BC, Canada*
- 2018 **MSSISS** - Online Non-Negative Tensor Decomposition with Application to Kidney Paired Donation *Ann Arbor, MI, USA*
- 2017 **ENAR** - Assessing the Benefits of Multiple Incompatible Donors in Kidney Paired Donation *Washington D.C., USA*
- 2016 **MSSISS** - Incorporating Candidates with Multiple Associated Incompatible Donors in Kidney Paired-Donation *Ann Arbor, MI, USA*
- 2011 **endMS Rounds** - General Practitioner Preferences in Managing Care for Multiple Sclerosis Patients *Montreal, QC, Canada*

POSTER PRESENTATIONS

- 2018 **ATC** - Interactive Software for Simulation and Management of a Kidney Paired Donation Program *Seattle, WA, USA*
- 2018 **ATC** - Gains from Joining Kidney Paired Donation with Several Incompatible Donors *Seattle, WA, USA*
- 2016 **ATC** - A Visualization Software Platform for Managing a Kidney Paired-Donation Program *Boston, MA, USA*
- 2016 **ENAR** - Incorporating Candidates with Multiple Associated Incompatible Donors in Kidney Paired-Donation *Austin, TX, USA*
- 2014 **MSSISS** - Incorporating Uncertainties and Contingencies in a Paired Donation Program *Ann Arbor, MI, USA*
- 2013 **ASN Kidney Week** - Incorporating Uncertainties and Contingencies in a Paired Donation Program *Atlanta, GA, USA*

Publication List

JOURNAL ARTICLES

- Bray M, Wang W, Song P XK, and Kalbfleisch JD (2018). Valuing Sets of Potential Transplants in a Kidney Paired Donation Network. *Statistics in Biosciences* 10(1): 255–79. doi: [10.1007/s12561-018-9214-7](https://doi.org/10.1007/s12561-018-9214-7)
- Ashby VB, Leichtman AB, Rees MA, Song P XK, Bray M, Wang W, and Kalbfleisch JD (2017). A Kidney Graft Survival Calculator that Accounts for Mismatches in Age, Sex, HLA, and Body Size. *Clinical Journal of the American Society of Nephrology* 12(7): 1148–60. doi: [10.2215/CJN.09330916](https://doi.org/10.2215/CJN.09330916)
- Wang W, Bray M, Song P XK, and Kalbfleisch JD (2017). A Look-Ahead Strategy for Non-Directed Donors in Kidney Paired Donation. *Statistics in Biosciences* 9(2): 453–69. doi: [10.1007/s12561-016-9155-y](https://doi.org/10.1007/s12561-016-9155-y)
- Bray M, Wolfson C, Moore F, Zhu B, and Uniat J (2016). General Practitioner Preferences in Managing Care of Multiple Sclerosis Patients. *Canadian Journal of Neurological Sciences* 43(1): 142–8. doi: [10.1017/cjn.2015.239](https://doi.org/10.1017/cjn.2015.239)
- Bray M, Wang W, Song P XK, Leichtman AB, Rees MA, Ashby VB, Eikstadt R, Goulding A, and Kalbfleisch JD (2015). Planning for Uncertainty and Fallbacks Can Increase the Number of Transplants in a Kidney Paired Donation Program. *American Journal of Transplantation* 15(10): 2636–45. doi: [10.1111/ajt.13413](https://doi.org/10.1111/ajt.13413)

INVITED COMMENTARY

- Bray M and Song P XK (2016). Commentary on "Statistical Modelling of Citation Exchange Between Statistics Journals" by Varin C, Cattelan M, and Firth D. *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 179(1): 1–63. doi: [10.1111/rssa.12124](https://doi.org/10.1111/rssa.12124)

IN PREPARATION

- Bray M, Wang W, Rees MA, Song P XK, Leichtman AB, Ashby VB, and Kalbfleisch JD (2018). KPDGUI: An Interactive Application for Optimization and Management of a Virtual Kidney Paired Donation Program. In Preparation
- Wang W, Bray M, Song P XK, and Kalbfleisch JD (2018). An Effective Algorithm to Enumerate Sets with Fallbacks for a Kidney Paired Donation Program. *Operations Research in Health Care* (Submitted)