# Saifuddin (Saif) Syed


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| **Date of Birth** | July 28, 1992 |
| **Citizenship** | Canada & Pakistan |

November 9, 2022

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## Education

2022 – **Postdoctoral Researcher**. *University of Oxford, Department of Statistics.*
Supervised by Arnaud Doucet
Computational statistics and machine learning group (OxCSML).
Funded by the CoSInES and MURI grants.

2022 – 2022 **PhD in Statistics**. *University of British Columbia, Department of Statistics.*
Supervised by Alexandre Bouchard-Côté
Thesis: "Non-reversible parallel tempering on optimized paths".

2014 – 2016 **MSc in Mathematics.** *University of British Columbia, Department of Mathematics.*
Supervised by Ed Perkins
Thesis: "Spatial diffusions with singular drifts: The construction of super Brownian motion with immigration at unoccupied sites".

2010 – 2014 **BMath in Mathematics.** *University of Waterloo, Faculty of Mathematics.*
Double major in pure mathematics and applied mathematics.
Graduated with distinction on the Dean's honours list.

## Other Academic Affiliations

2022 – **CoSInES project**. *United Kingdom*
Collaboration of researchers across the UK doing research in COmputational Statistical INference for Engineering and Security

2022 – **ngEHT Collaboration**. *International.*
Member of the Algorithms and inference working group for the Next-Generation Event Horizon Telescope.

## Publications


[1] Nikola Surjanovic, **Saifuddin Syed**, Trevor Campbell, and Alexandre Bouchard-Côté. "Parallel tempering with a variational reference" (2022), arXiv:2206.00080.
*Accepted in the Conference on Neural Information Processing Systems (NeurIPS).*

[2] Trevor Campbell, **Saifuddin Syed**, Chiao-Yu Yang, Michael I. Jordan, and Tamara Broderick. "Local exchangeability." (2022), arXiv:1906.09507.
*Accepted in Bernoulli.*

[3] **Saifuddin Syed***, Vittorio Romaniello*, Trevor Campbell, and Alexandre Bouchard-Côté. "Parallel tempering on optimized paths" (2021), arXiv: 1905.02939.
*International Conference on Machine Learning (ICML), PMLR 139:10033-10042, 2021.*

[4] **Saifuddin Syed**, Alexandre Bouchard-Côté, George Deligiannidis, and Arnaud Doucet. "Non-reversible parallel tempering: a scalable highly parallel MCMC scheme" (2021), arXiv:1905.02939.
*Journal of the Royal Statistical Society (Series B), DOI:10.1111/rssb.12464.*


* *denotes equal author contribution (shared first-authorship).*

## Prizes, Scholarships and other Honours

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| 2022 | ISBA 2022 World Meeting Travel Award |
| 2021 | Marshall Prize |
| 2017 – 2021 | UBC Four Year Fellowships (FYF) For PhD Students |
| 2020 | NeurIPS Top Reviewer (Top 10%) |
| 2017 – 2020 | NSERC Canada Graduate Scholarship Doctorate Award (CGS-D) |
| 2017 – 2020 | UBC Faculty of Science Graduate Award |
| 2017 | Anona Thorne and Takao Tanabe Graduate Entrance Scholarship in Statistics |
| 2015 – 2016 | NSERC Alexander Graham Bell Canada Graduate Scholarship (CGS-M) |
| 2010 – 2014 | Queen Elizabeth II Aiming for the Top Scholarship |
| 2010 – 2014 | University of Waterloo Math Faculty Dean's Honours List |
| 2013 | NSERC Undergraduate Student Research Award (USRA) |
| 2011 | University of Waterloo Research Award |
| 2011 | University of Waterloo President's Scholarship |

## Teaching Experience

2022 **Teaching Assistant**. *University of Oxford, Sommerville College.*
Probability theory

2018 – 2021 **Teaching Assistant**. *University of British Columbia, Department of Statistics.*
STAT 547C, Topics in probability for statistics.

2013 – 2021 **Private Math Tutor**. *Self-employed.*
Privately tutored 100+ unique students one-on-one with 2-5 regular clients per term.
Courses ranged from first year calculus to graduate complex analysis.

2015 – 2016 **Recitation Instructor**. *University of British Columbia, Department of Mathematics.*
MATH 100V/101V, Differential/Integral Calculus (Vantage College).
Taught one section of approximately 25 students for 2 terms.
Duties: lecturing, managing office hours, and 4 teaching assistants.

2015 **Instructor**. *University of British Columbia, Department of Mathematics.*
MATH 105, Integral calculus for commerce and social sciences.
Taught one section of approximately 80 students for 1 term.
Duties: lecturing, creating assignments, managing office hours, a teaching assistant.

2015 **Workshop Instructor**. *Beat Your Course Inc.*
Led exam review workshops in differential equations, and multivariate calculus.

2014 – 2015 **Instructor**. *BrainBoost Education.*
Taught Grade 5-12 students with learning disabilities (e.g. autism, dyslexia, etc.)

2014 **Teaching Assistant**. *University of British Columbia, Department of Mathematics.*
MATH 220, Mathematical proof.
Math learning centre tutor

## Relevant Experience and Service

2023 **Co-organizer**. *Computational statistics and the Event Horizon Telescope (EHT).*
Upcoming workshop funded by the Black Hole Initiative at Harvard Univerity to introduce AI methods researchers to the computational challenges at the EHT.

2022 – **Organizer**. *CoSInES seminar.*
Bi-weekly seminar series to showcase international computational statistics research.

2020 – **Reviewer**. *Statistics and Computing.*

2020 **Reviewer**. *Briometrika.*

2020 **Reviewer**. *Conference on Neural Information Processing Systems (NeurIPS).*

2018 **Reviewer**. *Association for Uncertainty in Artificial Intelligence (UAI).*

2012 – 2014 **General Manager & Co-editor-in-chief**. *Waterloo Math Review (WMR).*
The WMR was a journal spotlighting Canadian undergraduate math research

2013 **Research Assistant**. *University of Waterloo, Department of Pure Mathematics.*
Supervised by Spiro Karigiannis

2012 **Actuarial Analyst Intern**. *Desjardins General Insurance Group.*
Completed P/1 and FM/2 exams from the Society of Actuaries

2011 **Research Assistant**. *University of Waterloo, Department of Pure Mathematics.*
Supervised by Kevin Hare

## Talks

2023 **Bayes Comp 2023**. *Levi, Finland.*
(Upcoming Invited Conference) "Optimal tuning of SMC Samplers"

2022 **CMStatistics 2022**. *London, UK.*
(Upcoming Invited Conference) "Parallel tempering with a variational reference"

**NeurIPS 2022**. *New Orleans, USA.*
(Upcoming Invited Poster) "Parallel tempering with a variational reference"

**Harvard University Black Hole Initiative**. *Cambridge, United States.*
(Invited Seminar) "Non-reversible parallel tempering and the EHT."

**ISBA 2022 World Meeting**. *Montreal, Canada.*
(Invited Conference) "Non-reversible parallel tempering."

**University of Montreal Department of Statistics.** *Montreal, Canada.*
(Invited Seminar) "Non-reversible parallel tempering on optimized paths."

**University of Oxford OxCSML Seminar.** *Oxford, UK.*
(Invited Seminar) "Non-reversible parallel tempering on optimized paths."

**CoSInES Seminar**. *Remote.*
(Invited Seminar) "Non-reversible parallel tempering."

**Queensland University of Technology**. *Remote.*
(Invited Seminar) "Non-reversible parallel tempering on optimized paths."

**UBC Department of Statistics**. *Remote.*
(Invited Seminar) "Non-reversible parallel tempering on optimized paths."

**Simon Fraser University Department of Statistics**. *Burnaby, Canada.*
(Invited Seminar) "Non-reversible parallel tempering on optimized paths."

2021 **MCM 2021**. *Remote.*
(Contributed Conference) "Parallel tempering on optimized paths."

**ICML 2021**. *Remote.*
(Invited Poster) "Parallel tempering on optimized paths."

**ISBA 2021 World Meeting**. *Remote.*
(Contributed Conference) "Parallel tempering on optimized paths."

**Riskfuel Analytics Inc**. *Remote.*
(Invited Seminar) "Parallel tempering on optimized paths."

2020 **CAIDA: BC's AI Showcase**. *Remote.*
(Contributed Poster) "Non-reversible parallel tempering."

**MURI Seminar**. *Remote.*
(Invited Seminar) "Non-reversible parallel tempering."

2019 **University of Bristol Department of Mathematics**. *Bristol, UK.*
(Invited Seminar) "Non-reversible parallel tempering: scaling and optimality."

**CMStatistics 2019**. *London, UK.*
(Invited Conference) "Non-reversible parallel tempering."

**University of Oxford OxCSML Seminar**. *Oxford, UK.*
(Invited Seminar) "Non-reversible parallel tempering."

**MCM 2019**. *Sydney, Australia.*
(Invited Conference) "Non-reversible parallel tempering: scaling and optimality."

**1QBit Information Technologies Inc**. *Vancouver, Canada.*
(Invited Seminar) "Non-reversible parallel tempering: scaling and optimality."

**Microsoft Research**. *Redmond, USA.*
(Invited Seminar) "Optimal scaling of parallel tempering."

2018 **UBC/SFU Joint Statistics Seminar**. *Vancouver, Canada.*
(Contributed Conference) "Scaling laws of parallel tempering."

**SSC 2018 Annual Meeting**. *Montreal, Canada.*
(Contributed Conference) "Scaling laws of parallel tempering."