

## Salil Bhate, MA (Cantab.), MMath., MS, PhD

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D.O.B.: 2nd May 1992

Nationality: UK

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- EMPLOYMENT** *Broad Institute of MIT and Harvard, 2021 - present:*  
*Eric and Wendy Schmidt Center Postdoctoral Fellow*  
Mentors: Juan Caicedo and Caroline Uhler.
- EDUCATION** *Stanford University, 2015 - 2021: MS and PhD in Bioengineering:*  
MS in Bioengineering (synthetic biology, machine learning and statistics).  
PhD Supervisor: Garry Nolan.  
Thesis: *Towards semantic representations of tissue organization from high-parameter imaging data.*  
*University of Cambridge, 2014: MMath (with distinction):*  
Part III Mathematical Tripos. Thesis: *Statistical properties of geometric flows and equidistribution.* Supervisor: Prof. Vlad Markovic FRS.  
*University of Cambridge, 2013: BA Mathematics (first class honours):*  
Mathematical Tripos: top 10% in each year.
- FIRST-AUTHOR PUBLICATIONS** *Cell Systems, Oct. 2021: Tissue schematics map the specialization of immune tissue motifs and their appropriation by tumors.*  
S.S. Bhate\*, G. L. Barlow\* et al.  
*European Journal of Immunology, Jan. 2021: Highly multiplexed tissue imaging using repeated oligonucleotide exchange reaction.*  
J. Kennedy-Darling\*, S.S. Bhate\*, J.Hickey\* et al.  
*Cell, Aug. 2020 : Coordinated cellular neighborhoods orchestrate antitumoral immunity at the colorectal cancer invasive front.*  
C. Schuerch\*, S.S. Bhate\*, G. Barlow\*, D. Phillips\* et al.
- OTHER PUBLICATIONS** *BMC Bioinformatics, Jan. 2022: CellSeg: a robust, pre-trained nucleus segmentation and pixel quantification software for highly multiplexed fluorescence images*  
M. Li et al.  
*Nature Communications, Nov. 2021: Immune cell topography predicts response to PD-1 blockade in cutaneous T cell lymphoma.*  
D. Phillips et al.  
*Nature Communications, June 2021: Subcellular localization of drug distribution by super-resolution ion beam imaging.*  
X. Rovira-Clave et al.  
*Journal of Clinical Investigation, Jan. 2021: Landscape of coordinated immune responses to H1N1 challenge in humans.* Z. Rahil et al.  
*Cell Stem Cell, Oct. 2018: Systematic identification of factors driving cell-fate conversion using CRISPR activation screens.* Y. Liu et al.  
*Cell, Aug. 2018: Deep profiling of mouse splenic architecture with CODEX multiplexed imaging.*  
Y. Goltsev et al.  
*BioBricks Foundation RFC 106, Mar 2015: A Standard Type IIS Syntax for Plants.*  
V. Rutten et al.
- PREPRINTS** *biorxiv Jan. 2022: Immunotherapy of glioblastoma explants induces interferon- $\gamma$  responses and spatial immune cell rearrangements in tumor center, but not periphery*

T. Shekarian et al.

**ResearchSquare Feb. 2021:** A tissue atlas of ulcerative colitis to guide TNF inhibitor therapy

A. Mayer et al.

## ACTIVITIES

**Models, Inference and Algorithms, Broad Institute, Mar. 2022.**

Invited talk.

**Neural Information Processing Systems, Los Angeles, Dec. 2017**

Poster in computational biology workshop: “Unsupervised representation learning to interrogate cellular behaviours in 46-parameter imaging data”

Poster in computational biology workshop: “A multi-modal neural network for learning cis and trans regulation of stress response in yeast”

**Keystone Single Cell 'Omics, Stockholm, May 2017**

Poster: “Single-cell reference maps of tissue architecture using multiparameter imaging and unsupervised representation learning with neural networks”

(SBSA Travel Award, \$1000)

**AACR-CIMT-EATI-CRI International Cancer Immunotherapy Conference, New York, Sep. 2016**

Awarded short talk: “Automatic identification of cellular niches using multiparameter imaging and deep learning”

(SBSA Travel Award, \$1000, BioX Oral Presentation travel award \$500)

**Plants Workshop, iGEM Giant Jamboree, Nov. 2014, Boston:** Conducted technical session on *M. polymorpha* in the plants for iGEM workshop.

**Gold Medal, iGEM Nov. 2014, Boston:** competed as member of University of Cambridge-JIC team

## AWARDS AND SCHOLARSHIPS

**Bruce and Elizabeth Dunlevie Bio-X Stanford Interdisciplinary Graduate Fellowship, 2016:** full tuition and stipend support at elevated rate, 3 years.

**Clark Bioengineering Fellowship, 2015:** full tuition and stipend support, 2 years.

**Cambridge PMC Bursary, 2014:** £2000 grant for interdisciplinary collaboration.

**Senior Scholarship Prize, (2011, 2012, 2013, 2014)** for excellent performance in Parts IA, IB, II and III of the Math Tripos.

**Best A-Level Performance, King Edward VI Grammar School, 2010.**

## TEACHING

**Ethics of Biotechnology, Stanford, Spring 2018:** BioE131 teaching assistant. Hoefler award for mentorship of student writers.

**Synthetic Biology lab, Stanford, Fall 2017:** BioE44 teaching assistant

## EXPERIENCE

**Intern, Atum Technologies, April - June 2015**

Protein engineering. Designed and performed high-throughput screen to optimize function of transposase variants in *S. cerevisiae*, finding several variants now in production.

**Research assistant, Haseloff lab, Sep. 2014 - March 2015**

Plant synthetic biology. Optimized constructs and protocols for electroporation of *M. polymorpha* spores.

**Software engineering intern, FIS technologies, June - Sep. 2013**

Implemented error logging tool in C# for credit reporting software.

## SKILLS AND INTERESTS

**Programming:** C++, Python, R, C#, (modelling/machine-learning/software development). Pytorch/Tensorflow. Basic: SQL, Java.

**Language skills:** Marathi (Fluent). German, Classical Greek, Latin, French (A-level)

**Other:** Hindustani classical singing. Cycling and the outdoors.