

CHRISTOPHER B. TRIVEDI

Bioinformatician, LGC Biosearch Technologies
Berlin, DE
Website: christrivedi.com

I am a microbial ecologist and bioinformatician by training but am also passionate about data science and using computational tools to understand complex systems. Throughout my research i have bolstered my skills in r and statistics in order to disentangle challenging ecological questions. I find that these skills can be used beyond ecosystem science to approach all manner of complex data and intend to continue to build my skillset to enable stakeholders in any number of industry settings.

Education

- 2014-2018 PhD, Environmental Engineering Science, Colorado School of Mines, Golden, Colorado
Thesis: *The Microbiology of the Sulfur-Dominated Glacial Ecosystem Borup Fiord Pass, and High Arctic Low-Temperature Spring Associated Microbial Mats*. Advisor: Dr. John Spear
- 2012-2013 MS, Environmental Engineering Science, Colorado School of Mines, Golden, Colorado
- 2001-2006 BS, Biology, University of Colorado Denver, Denver, Colorado

Professional Experience

- 2022-Present Bioinformatician, **LGC Biosearch Technologies**, Berlin, Germanz
- Responsible for processing of NGS data through LGC informatics pipeline
 - LGC informatics pipeline development for current and upcoming technologies
- 2019-2022 Postdoctoral scholar, **GFZ German Research Centre for Geosciences**, Potsdam, Germany,
Section 3.5, Interface Geochemistry. Advisor: Prof. Dr. Liane G. Benning
Dynamics of microorganisms inhabiting Arctic glaciers and Ice sheets

Research Experience

- September 2020 Research visit, **Aarhus University**, Roskilde, Denmark
Arctic Research Center, Roskilde. Host: Alex M. Anesio
Multi-omics studies of snow and ice from the Greenland Ice Sheet
- 2019-2022 Postdoctoral scholar, **GFZ German Research Centre for Geosciences**, Potsdam, Germany,
Section 3.5, Interface Geochemistry. Advisor: Prof. Dr. Liane G. Benning
Dynamics of microorganisms inhabiting Arctic glaciers and Ice sheets
- 2018 Postdoctoral scholar, **Colorado School of Mines**, Golden, Colorado, USA
Department of Civil and Environmental Engineering, Advisor: Dr. John Spear
Metagenomics of a sulfur-dominated glacial outflow
- 2014-2018 Graduate student, **Colorado School of Mines**, Golden, Colorado, USA
Department of Civil and Environmental Engineering, Advisor: Dr. John Spear
The Microbiology of the Sulfur-Dominated Glacial Ecosystem Borup Fiord Pass, and High Arctic Low-Temperature Spring Associated Microbial Mats.

Grants, Fellowships, and Awards

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| 2020 | AWIPEV Research Base. Research base use grant to collect snow and ice samples in Ny-Ålesund, Svalbard during the 2021 season. ~5,000 EUR. Role: PI |
| 2020 | GFZ Expedition Innovation fund (Internal). Fieldwork grant to collect soil, snow, and ice samples in Iceland. 6,500 EUR. Role: Co-PI |
| 2019 | INTERACT Transnational Access Travel Grant. Travel and logistical costs for fieldwork in Greenland. 10,920 EUR. Role: Co-PI |
| 2018 | XSEDE HPC Startup Grant. Access to high performance computing resources. 8,455 USD. Role: PI |
| 2015 | SETI Travel Grant. Astrobiology Science Conference, Chicago, IL. 500 USD |

Publications

Trivedi, C. B., Keuschig, C., Larose, C., Rissi, D., Mourot, R., Bradley, J. A., Winkel, W., Benning, L. G. (2022). DNA/RNA preservation in glacial snow and ice samples. **In Review – Frontiers in Microbiology**.

Halbach, L., Chevrollier, L-A. A., Doting, E. L., Cook, J. M., Jensen, M. B., Benning, L. G., Bradley, J. A., Hansen, M., Lund-Hansen, L. C., Markager, S., Sorrell, B. K., Tranter, M., Trivedi, C. B., Winkel, M., and Anesio, A. M. (2022). Pigment signatures of algal communities and their implications for glacier surface darkening. **In Review – Scientific Reports**.

Winkel, M.°, Trivedi, C. B. °, Mourot, R., Bradley, J. A., Vieth-Hillebrand, Al, Benning, L. G. (2022). Seasonal evolution of glacial snow and ice microbial communities. **In Review – Frontiers in Microbiology**. (°co-first authors)

Lau, G. E., Trivedi, C. B., Grasby, S. E., Spear, J. R., Cosmidis, J., & Templeton, A. S. (2022). Sulfur-and Iron-Rich Mineralogical Features Preserved in Permafrost in the Canadian High Arctic: Analogs for the Astrobiological Exploration of Mars. **Frontiers in Astronomy and Space Sciences**, 9. <https://doi.org/10.3389/fspas.2022.825019>.

Tully, B.J., Buongiorno, J., Cohen, A.B., Cram, J.A., Garber, A.I., Hu, S.K., Krinos, A.I., Leftwich, P.T., Marshall, A.J., Sieradzki, E.T., Speth, D.R., Suter, E.A, Trivedi, C.B., Valentin-Alvarado, L.E., Weissman, J.L., & the BVCN Instructor Consortium. (2021). The Bioinformatics Virtual Coordination Network: An Open-Source and Interactive Learning Environment. **Frontiers in Education** 6: 394. <https://doi.org/10/gm5df5>.

Trivedi, C. B., Stamps, B. W., Lau, G. E., Grasby, S. E., Templeton, A. S., & Spear, J. R. (2020). Microbial Metabolic Redundancy Is a Key Mechanism in a Sulfur-Rich Glacial Ecosystem. **mSystems**. DOI: [10.1128/MSYSTEMS.00504-20](https://doi.org/10.1128/MSYSTEMS.00504-20)

Jarett, J. K., Džunková, M., Schulz, F., Roux, S., Paez-Espino, D., Eloë-Fadrosch, E., Jungbluth, S. P., Ivanova, N., Spear, J. R., Carr, S. A., Trivedi, C. B., Corsetti, F. A., Johnson, H. A., Becraft, E., Kyrpides, N., Stepanauskas, R., & Woyke, T. (2020). Insights into the dynamics between viruses and their hosts in a hot spring microbial mat. **The ISME Journal**, 14(10), <https://doi.org/10.1038/s41396-020-0705-4>.

Trivedi, C. B., Lau, G. E., Grasby, S. E., Templeton, A. S., & Spear, J. R. (2018). Low-temperature sulfidic-ice microbial communities, Borup Fiord Pass, Canadian high Arctic. **Frontiers in Microbiology**, 9. <https://doi.org/10.3389/fmicb.2018.01622>

Bradley, J.A.°, Daille, L.K.°, Trivedi, C.B. °, Bojanowski, C.L., Stamps, B.W., Stevenson, B.S., Nunn, H.S., Johnson, H.A., Loyd, S.J., Berelson, W.M., Corsetti, F.A., & Spear, J.R. (2017). Carbonate-rich dendrolitic cones: insights into a modern analog for incipient microbialite formation, Little Hot Creek, Long Valley Caldera, California. **NPJ biofilms and microbiomes**, 3(1), 32. <https://doi.org/10.1038/s41522-017-0041-2>
°co-first authors

Lau, G. E., Cosmidis, J., Grasby, S. E., Trivedi, C. B., Spear, J. R., & Templeton, A. S. (2017). Low-temperature formation and stabilization of rare allotropes of cyclooctasulfur (β -S₈ and γ -S₈) in the presence of organic carbon at a sulfur-rich glacial site in the Canadian High Arctic. **Geochimica et Cosmochimica Acta**, 200, 218–231. <https://doi.org/10.1016/j.gca.2016.11.036>

Stoll, Z. A., Ma, Z., Trivedi, C. B., Spear, J. R., & Xu, P. (2016). Sacrificing power for more cost-effective treatment: A techno-economic approach for engineering microbial fuel cells. **Chemosphere**, 161, 10–18. <https://doi.org/10.1016/j.chemosphere.2016.06.072>

Mentoring and Teaching

PhD co-supervision at GFZ Potsdam / Freie Universität Berlin

2020-Present Elisa Peter, *funded by ERC Synergy grant – DEEP PURPLE*
2020-Present Rey Mourot, *funded by ERC Synergy grant – DEEP PURPLE*
2020-Present Zhgengzheng Chen, *funded by CSC PhD scholarship*

Virtual Coursework

2020-Present Bioinformatics Virtual Coordination Network (BVCN). <https://biovcnet.github.io/>
(Instructor)

Field Experience

2021 Svalbard. Late summer field campaign to Feiringbreen and Midtre Lovenbreen glaciers as part of AWIPEV-supported project HOMAGE.
2021 Greenland. GrIS field campaign for ERC Synergy funded grant DEEP PURPLE.
2021 Southern Iceland. Anoxic soil core sampling as part of GFZ Expedition grant.

2019 Greenland, Sermilik Research Station, east Greenland. Sampling for genomic, geochemical, and organic analyses as part of INTERACT-funded project: AirMiMic.
2019 Iceland. Sampling for genomic, geochemical, and organic analyses.
2015 Long Valley Caldera, California, USA. Mammoth Hot Spring, California, USA. Walker Lake, Nevada, USA. Fieldwork investigating modern outcrop settings and their relation to stromatolites and the rock record. Part of the International Geobiology Course.
2014-2019 Yellowstone National Park, Wyoming, USA. Multiple field campaigns focusing on sample collection for genomic and geochemical analysis of thermal features.
2014 Borup Fiord Pass, Nunavut, Canada. NASA Exobiology field campaign. Field sampling of water, ice, and mineral precipitate samples for genomic and biogeochemical analysis.

Invited Presentations

- 02.2022 Trivedi, C. *Blooming Ice. Microbiology's Role in Melting Glaciers and Climate Change.* Einstein Forum. Potsdam, Germany.
- 06.2019 Trivedi, C. *Microbial Communities of Ellesmere Island in the Canadian High Arctic.* Geomicrobiological and Geochemical Colloquium. GFZ Helmholtz Centre, Potsdam, Germany.
- 05.2019 Trivedi, C. *Navigating your way to a postdoc.* MicroArctic – Marie-Curie ITN. Lyon, France

External Meetings and Workshops

- 03.2021 AWIPEV 2021 Science Workshop. Virtual
- 05.2019 MicroArctic, Marie Curie ITN Annual Meeting. Lyon, France
- 04.2019 EU FT-ICR MS Advance User School. Lisbon, Portugal.

Professional Service

- 2020 Conference Judge, APECS Online 2020.
- 2018-2020 Board member and website manager, US Association for Polar Early Career Scientists (USAPECS)
- 2014 Executive Secretary, NASA Exobiology Grant Panel, Denver, CO, USA.

Reviewer for peer-reviewed journals

Frontiers in Microbiology

Outreach

- 02.2022 **Einstein Forum.** Potsdam, Germany. *Blooming Ice. Microbiology's Role in Melting Glaciers and Climate Change.*
<https://www.einsteinforum.de/veranstaltungen/blooming-ice-microbiologys-role-in-melting-glaciers-and-climate-change/>
- 2019-Present **Long Night of Science.** GFZ Helmholtz Centre, Potsdam, Germany

Selected Courses and Training

- 2019 EU FT-ICR MS Advance User School. Faculdade de Ciências da Universidade de Lisboa (FCUL), Campo Grande. Lisbon, Portugal.
- 2015 International GeoBiology Course. Wrigley Institute for Environmental Studies, University of Southern California. Los Angeles, CA, USA.

Conference Proceedings

Oral*, Poster^

- 05.2020 *Winkel, M., Trivedi, C. B., Pötz, S., Vieth-Hillebrand, A., Plessen, B., Mouro, R., Mangelsdorf, K., Lutz, S., and Benning, L. G. *Seasonal variation in microbial community compositions and functions on Icelandic glacier.* APECS Online 2021

- 05.2019 *Trivedi, C. *Navigating your way to a postdoc*. MicroArctic, Marie-Curie ITN. Lyon, France
- 04.2019 *Trivedi, C. *Algae in Polar Environments*. EU FT-ICR MS Advance User School, Lisbon, Portugal.
- 04.2018 ^Trivedi, C. B., Stamps, B. W., Lau, G. E., Templeton, A. S., Grasby, S. E., Spear, J. R.; *Metabolic investigation of microbial communities found in a sulfur-dominated glacial spring system in the Canadian High Arctic*; 2018 Rocky Mountain Geobiology Symposium, Golden, CO, USA.
- 04.2018 ^Trivedi, C. B., Stamps, B. W., Lau, G. E., Templeton, A. S., Grasby, S. E., Spear, J. R.; *Metabolic investigation of microbial communities found in a sulfur-dominated glacial spring system in the Canadian High Arctic*; 2018 Graduate Research and Discovery Symposium (GRADS), Colorado School of Mines, Golden, CO, USA.
- 04.2017 ^Trivedi, C. B., Lau, G. E., Templeton, A. S., Grasby, S. E., Daille, L. K., Spear, J. S.; *The Geobiology of a Sulfur-Dominated Glacial Spring System Found in the Canadian High Arctic*; 2017 Astrobiology Science Conference, Mesa, AZ, USA. (#3540)
- 04.2017 *Daille, L. K., Trivedi, C. B., Bradley, J. A., Bojanowski, C. L., Stamps, B. W., Nunn, H. S., Johnson, H. A., Stevenson, B. S., Berelson, W. M., Corsetti, F. A., Spear, J. R.; *Carbonate-rich Cones: A potential modern analogue of ancient conical stromatolites*; 2017 Rocky Mountain Geobiology Symposium, Golden, CO, USA.
- 04.2017 ^Trivedi, C. B., Lau, G. E., Templeton, A. S., Grasby, S. E., Spear, J. R.; *Microbiological implications of a sulfur-dominated glacial spring system found in the Canadian High Arctic*; 2017 Graduate Research and Discovery Symposium (GRADS), Colorado School of Mines, Golden, CO, USA.
- 12.2015 ^Trivedi, C.B., Lau, G.E., Templeton, A.S., Grasby, S.E., Spear, J. R.; *Community Characterization of Microbial Populations Found at a Cold Water Sulfidic Spring in the Canadian High Arctic*; 2015 AGU Fall Meeting, San Francisco, CA, USA. (P11C-2105)
- 12.2015 ^Bojanowski, C. L., Trivedi, C. B., Daille, L. K., Bradley, J. A., Stamps, B. W., Nunn, H. S., Johnson, H. A., Stevenson, B. S., Berelson, W. M., Corsetti, F. A., Spear, J. R.; *Vertical Microbial Community Variability of Carbonate-based Cones may Provide Insight into Formation in the Rock Record*; 2015 AGU Fall Meeting, San Francisco, CA, USA. (B21C-0445)
- 11.2015 ^Daille, L. K., Trivedi, C. B., Bradley, J. A., Bojanowski, C. L., Johnson, H. A., Stamps, B. W., Stevenson, B. S., Berelson, W. M., Corsetti, F. A., Spear, J. R.; *Carbonate-rich Cones: A New Modern Analogue of Ancient Conical Stromatolite Formation?*; 2015 GSA Annual Meeting, Baltimore, MD, USA. (#109-7)
- 08.2015 *Templeton, A. S., Lau, G. E., Cosmidis, J., Trivedi, C. B., Spear, J. S., Grasby, S. E.; *Sulfur Oxidation and Biomineralization Processes in Sulfidic Ice Ecosystems*; Goldschmidt 2015, Prague, Czech Republic.
- 06.2015 ^Trivedi, C. B., Lau, G. E., Templeton, A. S., Grasby, S. E., Spear, J. R.; *Community Characterization of Microbial Populations Found in Supraglacial Icings at Borup Fiord Pass*, 2015 Astrobiology Science Conference, Chicago, IL, USA. (#7633)
- 06.2015 *Lau, G. E., Trivedi, C. B., Grasby, S. E., Spear, J. S., Templeton, A. S.; *Characterization of Sulfur-Rich Materials in Supraglacial Icings at Borup Fiord Pass, Canadian High Arctic*, 2015 Astrobiology Science Conference, Chicago, IL, USA. (#7349)
- 02.2015 *Lau, G. E., Trivedi, C. B., Spear, J. S., Grasby, S. E., Templeton, A. S.; *Characterization of Sulfur-Rich Materials in Supraglacial Icings at an Arctic Analogue to Europa*; NASA Ames Europa Plume Workshop, Moffett Field, CA, USA.

Professional Affiliations

- 12.2020-Present British Phycological Society
01.2018-Present US Association for Polar Early Career Scientists (USAPECS)

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| 01.2018-Present | Association for Polar Early Career Scientists (APECS) |
| 07.2015-Present | American Geophysical Union |
| 05.2013-Present | Sustainable Remediation Forum (SURF) |
| 10.2012-Present | American Society for Microbiology |