Richard D Colwell

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EXPERIENCE

Roumeli Lab (University of Washington) | Graduate Research Assistant — Seattle, WA
9/2024 – *Present*
Fabricating algal bioplastic materials and understanding their structure-property relationships. Evaluating role of key processing parameters (e.g., temperature, pressure, moisture content, and heat treatment) on bioplastic performance.

Amazon Worldwide Sustainability | Materials Lab Engineer — Seattle, WA
11/2023 – 9/2024
Led materials testing to evaluate novel post-consumer recycled and biodegradable polymer materials to support carbon reduction efforts.

Tender Food | Materials Research Associate II — Somerville, MA
8/2021 – 8/2023
Designed and conducted experiments to evaluate formulations and post-processing treatments for novel plant-based meat products. Pioneered a new platform for sample preparation to lower raw material costs by >50% and sample preparation time by >90% while reducing carbon footprint. Developed an LCA model for carbon footprint and ingredient hotspots.

Jaramillo Lab (MIT) | Undergraduate Research Assistant — Cambridge, MA/Remote
6/2020 – 12/2020
Utilized CAD and FEA to evaluate feasibility of sound as a low-cost method to clean PV module surfaces to improve power efficiency. Designed and conducted physical experiments to validate computational results and determine future improvements.

Rhapsody Venture Partners | Venture Capital Consultant — Remote
6/2020 – 8/2020
Explored markets for potential future investments in recycling while researching fundamental science and technology innovations. Studied existing and developing technologies in recycling and waste management. Prepared reports and presentations to aid investing.

EDUCATION

University of Washington — 9/2024 – *Present*
Ph.D. Materials Science and Engineering, Advisor: Dr. Eleftheria Roumeli — GPA: 3.98/4.0

Massachusetts Institute of Technology — 9/2017 – 6/2021
B.S. Materials Science and Engineering — GPA: 4.8/5.0
Minor in Environment and Sustainability

LEADERSHIP, MENTORSHIP, & TEACHING

UW Materials Science & Engineering Student Advisory Council | Member — Seattle, WA
10/2024 – *Present*
Responsible for identifying and sharing opportunities for improvement within the MSE department from the student perspective.

Questbridge | Alumni Mentor — Remote
1/2024 – *Present*
Providing mentorship about education and career paths to undergraduate students in Questbridge from first-generation, low-income backgrounds.

Middle East Entrepreneurs of Tomorrow | Team Lead, Instructor — Jerusalem, IL/Remote
6/2021 – 8/2023
Developed curriculum and taught students about entrepreneurship in a program connecting Israeli and Palestinian high schoolers. Taught in-person during summer, remotely taught on a semi-weekly basis.

Dept. of Materials Science and Engineering (MIT) | Teaching Assistant — Cambridge, MA
9/2019 – 12/2019
8/2020 – 12/2020
Taught classes of ~30 students about structure-property relationships through recitations, office hours and review sessions for Structure of Materials. Improved students' problem-solving skills and understanding of introductory materials science, earning an evaluation score of 6.7/7.0.

HONORS & AWARDS

NSF, Graduate Research Fellowship Program | Fellow (2024 – *Present*)
Achievement Rewards for College Scientists (ARCS) | Fellow (2024 – *Present*)
Ted Golfinopoulos Team Building Award (Middle East Entrepreneurs of Tomorrow) (2023)
Max Goldman Excellence in Education Award (Middle East Entrepreneurs of Tomorrow) (2021)
MIT International Science and Technology Initiatives Excellence Award (2021)
Fulbright Poland Semi-Finalist (2020)
Questbridge Scholar (2016)

PATENTS

Jaramillo, R. & **Colwell, R.** (Invention filed with MIT TLO October 2020). Mechanical Vibrations as a Low-Cost Replacement of Manual Cleaning of Solar Modules by Analogy to Chladni Plates. Case Number 22844.

Macqueen, L. et al. (May 26, 2022). Plant-Based Shredded Meat Products, and Methods of Producing the Same. U.S. Patent Application No. 63/346,172. Washington, DC: U.S. Patent and Trademark Office.

Macqueen, L. et al. (September 16, 2022). Plant and Animal Cell Blended Meat Products and Methods of Producing the Same. U.S. Patent Application No. 63/407,472. Washington, DC: U.S. Patent and Trademark Office.

Miller, E. et al. (December 16, 2022). Plant-Based Poultry Products, and Methods of Producing the Same. U.S. Patent Application No. 63/387,792. Washington, DC: U.S. Patent and Trademark Office.

PUBLICATIONS

Wiley-Camacho, G., Hillaire, G., Buttimer, C. J, & **Colwell, R.** (2022) Remote language revitalisation efforts during COVID-19, Technology, Pedagogy and Education, 31:3, 331-345, https://doi.org/10.1080/1475939X.2022.2077819

Buttimer, C. J, **Colwell, R.**, Coleman, D., Faruqi, F., Larke, L., & Reich, J. (2022). What's Lost, What's Left, What's Next: Lessons Learned From the Lived Experiences of Teachers During the Pandemic. Berkeley Review of Education, 11(2). https://doi.org/10.5070/B811251975

SKILLS

Lab Techniques:	Blown film production, DMA, DSC, FTIR, hot pressing, mechanical testing (compression, hardness, tear, tensile), moisture content & water activity analysis, optical microscopy, polymer extrusion, SEM, TGA, UV-Vis, viscometry, XRD
Data Analysis/Software:	Autodesk, Excel, GIMP, JMP, Mathematica, Python