Claire Elizabeth Kincaid

clairekincaid98@gmail.com * www.linkedin.com/in/ClaireElizabethKincaid * http://www.claireelizabethkincaid.com

Education

Colorado School of Mines, Golden, CO — *Est. Graduation May 2021*
- •Candidate for Master's of Science in Earth Resources Development Engineering
- •Cumulative GPA: 3.80
- *Adviser: Dr. Nicole Smith, Assistant Professor of Mining Engineering, Colorado School of Mines*

Franklin W. Olin College of Engineering, Needham, MA — *2015- 2019*
- •Bachelors of Science in Mechanical Engineering
- •Cumulative GPA: 3.67
- *Adviser: Dr. John B. Geddes, Professor of Applied Mathematics, Olin College of Engineering*

University College Dublin, Dublin, Ireland — *Spring 2018*
- •Study Abroad in Earth Sciences and Geotechnical Engineering
- •GPA: 3.63
- *Program Coordinator: Jamie Wells, Study Abroad Officer, School of Science*

Coursework
- •10 Sem Advanced Math: Linear Algebra, Multivariable Calculus, Partial Differential Equations, Statistics, etc.
- •6 Sem Design: Mechanical, Software, User-Oriented, and Affordable Design, Bio-Mimicry, Capstone.
- •6 Sem Business: Metal Markets, Corporate Social Responsibility, Leading Diverse Organizations, etc.
- •5 Sem Interdisciplinary Project Course: Mechatronics, Senior Engineering Capstone, Senior Design Capstones
- •5 Sem Japanese: Intermediate/Advanced Level
- •4 Sem Advanced Physics: Static and Dynamic Physics, Thermodynamics, Fluid Mechanics, Heat Transfer
- •4 Sem Mining: Fundamentals, Surface Mine Design, Mine Systems Analysis, Soil Mechanics & Geotech
- •3 Sem Geoscience: Geomaterials, Precambrian Geology, Advanced Geological Field Work
- •3 Sem Making: Making and Fabrication, Designing Resources for Empowerment and Making, etc.
- •1 Sem each of: Materials Science, Metallurgy, Biology, Qualitative Methods, Spanish

Work Experience

Komatsu Mining Corp: Graduate Applications Engineering Intern (Underground Mining) — *Summer 2020*
- •Assist applications engineers in consulting on equipment use and needs at various mine sites
- •Assist testing engineers in analyzing performance of prototype equipment in pilot mines
- •Travel to three international pilot mine sites to complete field performance analyses
- *Supervisor: Josh Wagner, Senior VP, Underground Hard Rock Mining Team*

Komatsu America Corp: Graduate Applications Engineering Intern (Surface Mining) — *Summer 2019*
- •Assist applications engineers in consulting on equipment use and needs at various mine sites
- •Assist design engineers in analysis and reporting of tests on new equipment capabilities
- •Assist test engineers in installing and testing new modifications to equipment prototypes
- *Supervisor: J.D. Wientjes, Director, Application Engineering, Surface Mining*

Resolution Copper Company: Mining Engineering Intern — *Summer 2018*
- •Conduct 2018 Joint Analysis Study and investigate tunnel wedging and factor of safety
- •Review and log data from Magma Mine archives
- •Conduct 2018 Tunnel Boring Machine state of the industry study
- *Supervisor: Mark Groulx, Mining Engineering Manager*

TE Connectivity: Product Engineering Intern — *Summer 2016*
- •Assist in troubleshooting and maintenance of current TE parts
- •Design and execute experiment for statistical analysis of high speed manufacturing techniques
- •Assist in total cost savings of $537,000 and business growth of $250,000, annually
- *Supervisor: Doug Hoffman, Product Engineering Manager*

A Wired Aesthetic: Owner, Operator — *2012-Present*
- •Mine and Cut gemstones for use in handmade jewelry and art
- •Design and fabricate award winning, handmade jewelry and sculpture for sale and display

Professional Affiliations

Society of Women Engineers — *Sep 2015 - Present*
- •Student Member, Colorado School of Mines Chapter, Graduate
- •Student Member, Fundraising Lead: Olin College of Engineering Chapter, Undergraduate

Society for Mining, Metallurgy, and Exploration — *Sep 2017- Present*
- •Student Member, Colorado School of Mines Chapter, Mining and Exploration Division
- •Speaker, 2018 SME Arizona Conference
- •Presenter, 2019 Annual Conference

Women in Mining — *Oct 2017- Present*
- •Student Member, Colorado School of Mines Chapter, Graduate
- •At large Student Member, Undergraduate

Society for Economic Geology — *Present*
- •Student Member, Colorado School of Mines Chapter

Teaching Experience

Colorado School of Mines: Corporate Social Responsibility Teaching Assistant — *Spring 2020*
- •Evaluate student writing and attendance

Supervisor: Dr. Nicole Smith, Assistant Professor of Mining Engineering

Olin College of Engineering: Machine Shop Assistant — *2018-2019*
- •Assist in the cleaning and maintenance of the Olin Machine Shop
- •Train students in safe use of the Large Project Building and the Olin Blacksmith's Forge

Supervisor: Dr. Daniela Faas, Director of Fabrication, Professor of Mechanical Engineering

Olin College of Engineering: Quantitative Engineering Analysis Teaching Assistant — *Fall 2017*
- •Assist in the application and analysis of advanced mathematical principles to common engineering systems involving circuitry, robotics, computer science, and mechanical design.
- •Assist in curriculum development & iterative improvement of overall course structure

Supervisor: Dr. Paul Ruvolo, Assistant Professor of Computer Science

Olin College of Engineering: Multivariable Calculus Teaching Assistant — *Fall 2016*
- •Supplement class lectures by planning and administering 'mini lectures' to assist in understanding
- •Discuss student and class progress, understanding, and problems with instructors to assist in understanding of teaching effectiveness and areas of importance

Supervisor: Dr. Aaron Hoffman, Associate Professor of Mathematics

Olin College of Engineering: Linear Algebra Teaching Assistant — *Spring 2016*
- •Discuss student and class progress, understanding, and problems with instructors to assist in understanding of teaching effectiveness and areas of importance

Supervisor: Dr. Aaron Hoffman, Associate Professor of Mathematics

Research Experience

Graduate Thesis in Diversity & Inclusion in the Mining Industry — *Present*
- •Build upon undergraduate research project in diversity and inclusion in the mining industry
- •Determine the current state of diversity and inclusion in the mining industry
- •Develop novel measurement tools to accurately evaluate the state of inclusion

Supervisor: Dr. Nicole Smith, Assistant Professor of Mining Engineering, Colorado School of Mines

Undergraduate Research in Diversity & Inclusion in the Mining Industry — *2018-2019*
- •Conduct survey of recent academic and corporate literature on diversity & inclusion
- •Conduct survey of current state of diversity & inclusion in the mining industry

Supervisor: Dr. Debbie Chachra, Professor of Engineering, Olin College

Undergraduate Research in Structural Geology and Fault Mapping — *Spring 2018*
- •Analyze pictorial dataset of lignite mine near Mavropigi, Greece
- •Generate maps and cross sections to create a three dimensional picture of underlying faults

Supervisor: Dr. Tom Manzocchi, Associate Professor of Earth Sciences, University College Dublin

Undergraduate Research in Systems Engineering, Communication, and Education — *2016-2017*
- •Analyze multiple case study using ethnographic methods-- collaboratively develop coding scheme for boundary objects and their effects on communication and decision making
- •Extract engineering education principles to be applied to the classroom
- •Collaboratively develop and write multiple presentations and a conference paper

Supervisor: Dr. Alexandra Strong, Assistant Professor of Systems Design and Engineering, Olin College

Undergraduate Research in Colloidal Crystallization and Annealing — *Spring 2017*
- •Explore and develop methods of annealing colloidal crystals for applications in photonics
- •Analyze annealing of colloidal crystals using vibratory, laser, and other methods

Supervisor: Dr. Rebecca Christianson, Associate Professor of Applied Physics, Olin College

Presentations & Publications

"My First Five Years in Industry/Academia" — *Feb 2020*
- •1st Author, Conference Presentation, YLC, SME National Conference 2020

"Mining for Talent: Diversity and Inclusion in Mining Today" — *Feb 2020*
- •1st Author, Conference Presentation, SME National Conference 2020

"Increasing Workforce Diversity: A Short Course for Industry Professionals" — *Feb 2019*
- •1st Author, Conference Presentation, SME National Conference 2019

"Increasing Workforce Diversity Panel" — *Dec 2018*
- •2018 IMR Short Course Panel Member

"Perspectives on Diversity in Mining" — *Nov 2018*
- •1st Author, Published on Linkedin in advance of 2018 IMR short course

"Sending Out the Invitations: Developing Diversity in Mining" — *Feb 2018*
- •1st Author, Published in February 2018 issue of SME's Mining Engineering Magazine

"Preparing Students for Engineering Design Work Environment: A Study of Practicing Engineers" — *Feb 2017*
- •2nd Author, Presented at American Society of Engineering Education annual conference June 2017

Field Work

Aggregates Customer Site Study, Multilocation, Georgia, US : *Team of Two, Collaborative Member* — *Jun 2019*
- •Conduct site study of customer use of Komatsu loading and hauling equipment at several quarries
- •Analyze time study data, quickly generate and present reports to customers with recommendations
- •Assist in strengthening relationship between Komatsu and customer

Supervisor: Michelle Harman, Applications Engineer, Komatsu America Corp.

Contextual Development Fieldwork, Multi-location, South Africa: *Team of Five, Project Manager* — *Feb 2019*
- •Engage and design with users of proposed sanitation technology in Johannesburg, South Africa
- •Attend 5th Annual Fecal Sludge Management Conference in Capetown, South Africa
- •Interface with sponsors of capstone project and end users of capstone technology

Supervisor: Dr. Scott Hersey, Assistant Professor of Chemical and Environmental Engineering, Olin College

Contextual Development Fieldwork, Kumasi, Ghana: *Team of Six, Documentation Lead* — *Jan 2019*
- •Engage with primary users and manufacturers of food processing technology
- •Make incremental design changes based off of engagements and in-country experiences
- •Assist in prototyping and manufacturing of machines in country, act as chief documentarian of work

Supervisor: Dr. Benjamin Linder, Professor of Mechanical Engineering, Olin College

Geological Fieldwork, Co. Mayo, Ireland: *Team of Three, Collaborative Member* — *Apr 2018*
- •Establish field relationships and deduce geological history or Paleoproterozoic to Mesoproterozoic Gneiss
- •Use basic dykes as structural markers to distinguish Grenvillian from Grampian events
- •Link basement to Cover of Neoproterozoic Dalradian Metasediments

Supervisor: Dr. P.F McDermott, Department Head, University College Dublin Earth Sciences

Geological Fieldwork, Co. Antrim, Northern Ireland: *Team of Four, Collaborative Member* — *Mar 2018*
- •Introduction to geological fieldwork techniques in examining and mapping mineral and sediment sites
- •Portraine, Protrush, Ballycastle, Giant's Causeway, Chushendall, and Ballintoy Harbour, in Northern Ireland
- •Characterize and map geological characteristics of each site, discuss with classmates and mentors

Supervisor: Dr. Stephen Daly, Professor of Geology, University College Dublin Earth Sciences

Service

Colorado School of Mines, Student Chapter SME: Minerals Education Chair — *2019- Present*
- •Assist in various club activities including mineral shows, golf tournaments, and formal events

SME Young Leaders Committee, Class of 2020 — *2019- Present*
- •Assist in various club activities including mineral shows, golf tournaments, and formal events

University of Arizona, Lowell Institute for Mineral Research — *2017-2019*
- •Assist Lowell Institute of Mineral Resources in planning & delivering diversity & inclusion programming aimed at mining and minerals resources

Awards

SRK Graduate Scholarship: *SRK Consulting, Denver* — *Aug 2019*
- •Academic scholarship totaling $6,000

Resource Capital Fund Fellowship: *Resource Capital Fund, Colorado School of Mines* — *May 2019*
- •Full tuition graduate fellowship totaling $35,000

Grand Challenge Scholar: *NAE GCSP Program, Olin College of Engineering* — *May 2019*
- •Grand Challenge Scholar Award, specializing in advancing personalized learning

UCD Exchange: *University College Dublin* — *Oct 2017*
- •Subsidized Earth Sciences Study Abroad totaling €17,000

Olin Merit Scholarship: *Olin College of Engineering* — *May 2015*
- •½ Tuition Undergraduate Scholarship totaling $84,000

Certifications

Engineer In Training; *National Council of Examiners for Engineering and Surveying, Golden, CO* — *Aug 2019*
- •Exam scheduled April 2020

MSHA Underground: *Eagle Safety Trainers, Superior, AZ* — *May 2018*
- •Mine underground safety, emergency rescue chamber, and emergency shaft transfer certification

First Aid and CPR/AED: *American Heart Association, Phoenix, AZ* — *May 2018*
- •CPR, AED, Emergency First Aid certification

ITAR: *TE Connectivity, Harrisburg, PA* — *May 2016*

Relevant Skills

CAD/CAM
- •SOLIDWORKS, SOLIDWORKS PDM, AutoCAD, ONSHAPE, PTC Creo, SpaceClaim, FEA/FEM

Mining and Professional Software
- •Vulcan, PCBC, Minesight 3D, Ampl, Microsoft Professional Suite, Adobe Creative Cloud, Mini Tab, SAP

Programming & Controls
- •Excel Solver, MATLAB, Mathematica, Python, R, Arduino C, LaTeX, COMSOL

Relevant Skills (cont.)

Welding
- •MIG, TIG, Oxy/Ace, Spot Welding, Laser Welding, Stick Welding, Brazing, Plasma Cutting, CNC Plasma Cutting

Machining
- •Manual Mill, 3-axis CNC Mill, Lathe, Sheet Metal Fabrication, Casting, Forging, Sand Blasting & Abrasives

Woodworking
- •Intermediate hand working, Table/Chop Saws, Rotary/Belt Sanders, Planer, Routers, CNC Shopbot, Wood Lathe

Rapid Prototyping
- •Breadboard, Soldering, Sewing, 3D Printing, Resin Printing, Vinyl Cutting, Laser Cutting

Digital Analysis
- •Instron, Fischer Box, Diamond Saws, Diamond Grinders, Flat Lap, FTIR, Pycnometer

Microscopy
- •Metallographic Microscope, Petrological Microscope, SEM, EDS

Field Evaluation
- •Geophysical Site Evaluation, Geological Field Investigation & Mapping, 3D Geological Visualization

Language
- •Intermediate-Advanced Japanese, Beginner Spanish, Fluent English

Soft Skills
- •Presentation & Reporting, Cultural Flexibility, Direct & Indirect Management, Collaborative Teaming

Selected Projects

UG Engineering Capstone: Gates Foundation Fecal Sludge Conveyance: *Team of Five, Project Manager* *2018-2019*
- •Design conveyance solutions for pit latrine emptying systems in Sub-Saharan Africa and South Asia.
- •Manage team of five, facilitate inter and intra team, advisor, and industry sponsor communication
- •Winter Field Season South Africa Feb 2019; Final Presentation May 2019

UG Design Capstone: Queentech Gari Processing: *Team of Eight, Project Manager* *Spring 2019*
- •Design and improve upon existing mini graters and presses to aid small scale Ghanaian gari production
- •Interface with operators on the ground to maintain and track machine use and business progress
- •Winter Field Season in Ghana, Jan 2019

UG Humanities Capstone: Making Makerspaces: *Individual* *Spring 2019*
- •Conduct case study of new educational makerspace collaborative utilizing ethnographic methods.
- •Document the birth and development of the makerspace and suggest organizational changes to director
- •Final Presentation and Report, May 2019

Tunnel Boring Machines, Current State: *Individual* *Sum 2018*
- •Compile report on current state of Tunnel Boring Machine solutions for underground mining operations
- •Make recommendations as to potential TBM manufacturing partners
- •Final Report, August 2018

2018 Joint Analysis Study: *Individual* *Sum 2018*
- •Compile historical and recent jointing data from Magma & Resolution rotary core borehole logs
- •Identify three major joint sets by joint type (i.e. fault, breccia, etc.) and determine risk of wedging
- •Final Report, Aug 2018

ABI Breakouts Study: *Individual* *Aug 2018*
- •Compile historical and recent acoustic borehole imaging data from Resolution rotary core borehole logs
- •Identify breakouts and tensile fractures in each borehole & compile a geographical database

Magma Archive Study: *Individual* *Aug 2018*
- •Examine historical Magma Mine records and extract important temperature and water flow benchmarks
- •Recommend updated or historical benchmarks to Resolution for 2019 Feasibility Study

Site Investigation Study: *Team of Five, Collaborative Member* *Sprg 2018*
- •Conduct desk study and mock site investigation, determine ideal building location
- •Design foundation for 2000 kg standing and 1600 kg variable weight, suitable to soil and bedrock types
- •Presentation and Report, May 2018

Geological Mapping: *Individual* *Apr 2018*
- •Conduct field survey of beach in Co. Antrim; identify and measure major formations and intrusions
- •Construct localized geological map from field data, justify hypothesis to supervising professors

Mineralization Analysis: *Team of Two, Collaborative Member* *Apr 2018*
- •Analyze industrial ore and mineral specimens and thin sections from various localities
- •Determine and report on Mineralization, crystallization, and enrichment properties

The Oil Game: *Team of Two, Collaborative Member* *Feb 2018*
- •Apply principles of exploration and petrology to simulate the activities of an oil company
- •Generate and update contour maps of two separate oil-carrying formations with provided drill data
- •Deduce possible locations of oil reservoirs based off of maps, and 'bid' on well locations

Creation of Synthetic Corundum: *Team of Six, Fabrication and Mineralogy Lead* *Dec 2017*
- •Design and Fabricate Torch Fixturing & create corundum in a Vernieul Flame Fusion Process
- •Final Presentation and Report, Dec 2017