ATLAS Institute Recognition Ceremony
Friday, May 15, 2020

College of Engineering
& Applied Science

UNIVERSITY OF COLORADO **BOULDER**

ATLAS Institute's Programs of Study

Doctor of Philosophy, Technology, Media & Society

Master of Science, Technology, Media & Society with tracks in
Information & Communication Technology for Development
Creative Technologies + Design

Bachelor of Science, Technology, Arts & Media

Minor, Technology, Arts & Media

Doctoral Dissertation Abstracts

David Oonk
Assessing the Present and Future of Fracking Governance: Science, Expertise, and Policy of Fracking in Colorado's Denver Julesburg Basin
The recent extraction of shale oil and gas through fracking in the United States has been responsible for a domestic production boom over the last two decades. There are long-term questions about greenhouse gas emissions related to fracking and questions whether this revolution is reinforcing US dependence on fossil fuels. These extraction technologies have changed the landscape of modern fossil fuel extraction where oil and gas fields are peppered with thousands of dispersed wells intermixed with residential communities. These conflicts present short-term questions about the impact of fracking emissions on nearby communities. Methane and air toxics emitted by wells that employ fracking create challenges for policy-makers considering climate goals and public health concerns. These emissions are invisible to the naked eye and their impacts are difficult to detect. Thus, taking measurements, analyzing data, and assessing the risks of fracking requires expertise from many different groups. Scientists, engineers, researchers, and experts from academia and industry interact with policy-makers and inform fracking governance and regulation. This research focuses on Colorado's Denver Julesburg basin and looks at a case study of how the state regulates and addresses the present and future challenges of emissions related to fracking and how science and expertise inform those decisions. Fracking in Colorado presents a unique case to study the science and policy of a politically contentious and 'risky' technology.
Advised by Dr. Max Boykoff

Lila Finch
Luminous Science: An Investigation of Transdisciplinary Education
In most public education in the United States, we organize teaching and learning around siloed disciplines. Most educational research has focused on improving learning outcomes within those disciplines. However, this disciplinary focus creates dividing lines that limit the ideas, practices, representations, and identities that might be applied or acceptable in the classroom. My research investigates how to reimagine learning environments to be transdisciplinary in ways that bring together the arts, sciences, and computing in school-based education. This work begins with an overview of a pedagogical meta-design, called Luminous Science, and a concrete design instantiation of that meta-design, co-developed with teachers. The resulting classroom implementations are described, including the characteristics of students' projects and teachers' facilitation of those projects that were associated with greater transdisciplinarity.
Advised by Dr. Ben Shapiro

Clement Zheng
Everyday Materials for Physical Interactive Systems
We live in a built environment shaped by a wide range of materials engineered for different purposes. Computers have permeated many aspects of this built environment, from living spaces to clothing. This ubiquitous computing context requires a new way of looking at the materiality of interactive systems. I am particularly drawn towards everyday materials as a resource for designing and making physical interactive systems—a subset of computational composites where physical materials come together in a coherent assembly for human interaction. In my explorations, I leveraged everyday materials to surface new techniques for building computational composites. Inspired by the success of these explorations, I facilitated a class with graduate students who explored everyday materials for interaction design. In this dissertation, I detail the material-driven projects I engaged with as a researcher and facilitator. From these material-centered projects, I observed that everyday materials offer a rich variety of creative affordances and are accessible to designers and makers. However, I also observed that material-centered design projects are complex—requiring designers to navigate material, environmental, and contextual encounters to arrive at meaningful outcomes. I reflect on the opportunities and challenges that everyday materials offer for building physical interactive systems, and propose a system for organizing the different facets that designers engage with during material-centered design. Furthermore, I discuss my insights for facilitating material-centered projects, including strategies for catalyzing how designers "see" materials, the external representations that a designer makes, as well as the tools employed for investigating everyday materials.
Advised by Dr. Ellen Yi-Luen Do

Spring 2020 Degree Candidates

Doctor of Philosophy | Technology, Media & Society

Lila Finch

David Oonk

Clement Zheng

Master of Science | Technology, Media & Society

Phelan Bowie *CTD*

Cody Candler *CTD*

Gabriel Chapel *CTD*

Bryan Costanza *CTD*

Maria Deslis *CTD*

Cassandra Goodby *CTD*

Farjana Ria Khan *CTD*

Grace Kroeger *CTD*

Ben Lee *ICTD*

Jack Lewis *CTD*

Sam Miller *CTD*

Celeste Moreno

Rona Sadan

Mariana Tamashiro *CTD*

Christopher Vecchio *CTD*

Bachelor of Science | Technology, Arts & Media

Sophie Adams

Joshua Aguilar-Wynn

Jonathan Allen

Sahil Bajaj

Divya Bandreddi

Nathanael Bennett, *summa cum laude*

Serena Buxton

Allison Casey

Jacky Cheung

Dongjoon Choe

Brittany Choy, *cum laude*

Isabella Colosimo

Xavier Corr, *magna cum laude*

Kenneth Cox

Jordan Denning, *summa cum laude*

Diana Duffy, *magna cum laude*

Sarah English, *cum laude*

Kyle Faucher, *summa cum laude*

Alexander Fiel, *magna cum laude*

Kirsten Garthwaite

Benjamin Gillespie

Joss Gitlin

Hunter Haller

Tristan Hanna

Damian Howard

Weiliang Jin, *with honors*

Sky Johnson

Thomas Kirby

Ariel Klebanov

Josephine Klefeker

Madeline LaMee

Hai Li

Yamei Liao

Xiang Luo

Jennifer Mah, *magna cum laude*

George Marshall

Jack Marty, *cum laude*

Napass Masathienvong

Kara Metcalfe, *summa cum laude*

Laura Murray, *with honors*

Jared Myers

Jordan Nahabetian

Varun Narayanswamy, *with honors*

Alexander Nelson

Kathy Nguyen

Nolan Ollada

Corbin Peters

Israel Quinonez

Abby Rinerson

Elsa Roeber, *magna cum laude*

Peter Rosenthal

Rebecca Saulsberry, *cum laude*

Samuel Sawyer

Matthew Sexton

Fiorella Sobenes

Cadence Speelman

Sara St. Clair

Brooke Stevens, *cum laude*

Daniel Strangfeld

Summerlyn Thompson

Benjamin Vernon, *summa cum laude*

Beau Walters, *cum laude*

Chun-Yi Wang

Campbell White

Minor | Technology, Arts & Media

Eleanor Alicea	Taylor Ehrlich	Megan A. Nyvold
Austin Argueso-Nott	Kaitlyn N. Engelson	Natalie K. Ocampo
Scott Beck	Ian N. Fauconier	Aidan Oconnor
Johanna E. Bellig	Graham W. Fee	Virginia Olmstead
Payton N. Bieker	Kyle Fowler	Cosmo Pallarito
Lanea B. Blackburn	Grace E. Francis	Hailee Pritchard
Evan D. Boretz	Katelyn R. Gelfand	Xinru Qian
Danielle K. Brown	Joseph A. Harig	James H. Ratzlaff
Elissa Buck	Katherine Harper	Madelyn L. Salvucci
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Sydney Burmood	Andrea M. Invernizze	Madeline Simard
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Olivia R. Dominguez	Mesa L. Martorell	Hannah L. Young
Wangyingshuai Dong	Rachel E. Matthews	Alanna M. Zelac
Johnathan H. Dressel	Peyton G. Miller	Rachel M. Zetzman
Pranathi Durgempudi	Skye T. Monroe	Yuan Zhuang
Robert B. Eckles	Hannah M. Morrison	