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Distinguished Dissertation AWARDS

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RACKHAM GRADUATE SCHOOL

UNIVERSITY OF MICHIGAN

Welcome

The quality and diversity of doctoral dissertations produced each year by Rackham students is key to the distinction that the University of Michigan has earned as one of the world's great research universities. Rackham's doctoral students contribute innovative research and scholarship at the highest level in many fields.

Each year, truly exceptional dissertations are recognized with the ProQuest Distinguished Dissertation Awards. Faculty who have served as chairs of dissertation committees nominate outstanding students who have completed their dissertations. These nominations are reviewed by a faculty panel and then read closely by postdoctoral fellows who are members of the Michigan Society of Fellows, a unique interdisciplinary community of outstanding scholars.

The awards are co-sponsored by ProQuest, a global information-content and technology company based in Ann Arbor that publishes more than 200,000 dissertations and theses annually, including more than 800 by University of Michigan graduate students. We are delighted to have ProQuest, part of Clarivate, as a partner in celebrating the accomplishments of these scholars and recognizing the excellence of their doctoral dissertations.

Mike Solomon

Dean and Vice Provost for Academic Affairs

Emily Coccia

English and Women's and Gender Studies

Workingwomen and Pleasured Reading: Nineteenth-Century Sensation Fiction and the Formation of Queer Readers

Ph.D., English and Women's and Gender Studies, 2024

M.A., English, Georgetown University, 2017

B.A., English and Government, Georgetown University, 2015

Coccia's dissertation makes a case for reading nineteenth-century American workingwomen's works through a method of "too close reading." Whereas scholarship on sapphic writings from this period focuses on upper-class white women's works that are well-documented and preserved, Coccia turns to texts authored by working women—texts that were often ephemeral and registered queer desires through modes of elision and latency. How does one read texts that were deemed unimportant for posterity and went out of their way to hide their writers' desires? Drawing on fandom studies, Coccia propounds "too close reading" as a method for textual analysis that is commendably historicist—a form of scholarly engagement that does not assume a sedate objective distance but stays true to how authors and readers read these texts historically by taking seriously readerly sympathies, overidentification, and hyperattachment. It insists on a fearless affective attachment to the text—reading like a fan, as it were—and thus becoming absorbed by not only the text but also its materiality and the lives that shaped it. Coccia's work deserves this award as it is incredibly well-researched, pulling together archival materials with published works for an intellectually bold undertaking that does not balk at apparent archival "absences" and analyzes queer pleasure in beautiful and clear prose that is indeed a true pleasure to read.

Comments by Meghna Sapui, English Language and Literature

Dissertation Committee:
Valerie Traub, Chair
Antoine Traisnel
Nadine Hubbs
Dana Seitler

Alisher Duspayev

Physics

Precision Measurements and Quantum Sensing Using Cold Atoms

Ph.D., Physics, 2024

M.Sc., Electrical and Computer Engineering, 2021

B.S., Physics, Nazarbayev University, 2017

Alisher Duspayev's dissertation, Precision Measurements and Quantum Sensing Using Cold Atoms, focuses on advancing atomic physics techniques for precision measurements and quantum sensing. Their research explores the behavior of ultra-cold rubidium atoms and their interactions with electromagnetic fields, with significant applications in atomic clocks, electric field sensing, and novel quantum measurement techniques. A key contribution of their work is the precise determination of the dynamic polarizability and photoionization cross-section of rubidium's 5D states, which are crucial for developing improved portable atomic clocks. Additionally, Duspayev introduces an innovative method for real-time monitoring of electric fields in ion sources using highly sensitive Rydberg atoms, providing a new approach for refining ion-beam technologies. Duspayev's dissertation stands out for its rigorous experimental methodology, theoretical contributions, and broad impact on quantum technologies.

Comments by Ifeolu David, Epidemiology

Dissertation Committee:
Georg Raithel, Chair
Vanessa Sih
Kai Sun
Steven Cundiff
Alexander Burgers

Noam Gannot

Oral Health Sciences and Biologic & Materials Sciences

A Neural Control Circuit for Cough-Like Defensive Behaviors in Mice

Ph.D., Oral Health Sciences, 2024

B.S., Bioengineering, University of Maryland, 2018

Gannot opened new avenues for research on coughing, an important reflex for clearing the airway, by characterizing the cough in mice. Mice are the primary model organism for medical science due to the extensive genetic techniques available but have historically not been practical for cough research. Gannot's comprehensive study included everything from creating a consistent method for measuring coughing in mice to stimulating individual populations of neurons to identify the mechanisms behind the cough. Her dissertation was creative, clearly written, and provided excellent context for how it solved persistent problems in the field. It will undoubtedly be foundational for future work on coughing.

Comments by Anne Kort, Earth & Environmental Sciences

Dissertation Committee:
Peng Li, Chair
Roger Cone
Nisha D'Silva
Joshua Emrick

Felicia Hardi

Psychology

Heterogeneity in the Neural Mechanisms of Adversity: Implications for Developmental Risk and Resilience

Ph.D., Psychology, 2024

M.S.W., New York University, 2013

B.A., Psychology, 2010

Felicia A. Hardi's dissertation expertly intervenes in both theoretical psychology and neuroscience. The work's interdisciplinary nature is further enhanced by its adept interweaving of diverse methodologies, particularly the deployment of a longitudinal study approach to the problem of adversity as understood within their field. Hardi's work is commendable for a thorough integration of quantitative and person-centered analyses, including both the generation of new data for their experiments and a reinterpretation of existing datasets. In addition, Hardi communicates their findings in a refreshingly lucid and nuanced way, ensuring that their work is accessible to a wide variety of scholars. It is with great pleasure that we grant them the ProQuest Distinguished Dissertation Award and sincerely wish them all the best in their further academic career.

Comments by Ismael Biyashev, History

Dissertation Committee:
Christopher S. Monk, Chair
Adriene Beltz
Luke W. Hyde
Vonnie McLoyd
Colter Mitchell
Stephan Taylor

Subha Maity

Statistics

An Exploration of the Statistical Challenges and Fairness Implications of Transfer Learning

Ph.D., Statistics, 2024

Master Of Statistics, Indian Statistical Institute, 2018

Bachelor Of Statistics, Indian Statistical Institute, 2016

Subha Maity's dissertation, An Exploration of the Statistical Challenges and Fairness Implications of Transfer Learning, examines key challenges in transfer learning while exploring its impact on fairness in machine learning. Transfer learning improves model performance in data-limited settings but introduces difficulties in handling distribution shifts and ensuring fair predictions.

Maity's research develops statistical methods to address these challenges, including solutions for label shift, posterior drift, and concept drift, which affect model accuracy and reliability. A major contribution of this work is its analysis of fairness, particularly how biases in training data impact predictive performance. The study highlights when fairness constraints can enhance accuracy and when they may unintentionally worsen outcomes.

By combining deep statistical analysis with practical applications, Maity's dissertation advances both transfer learning theory and fairness-aware machine learning, making a significant contribution to the field.

Comments by Ifeolu David, Epidemiology

Dissertation Committee:
Moulinath Banerjee, Co-chair
Yuekai Sun, Co-chair
Yaacov Ritov
Clayton Scott, Cognate member

Darian Santana

Microbiology and Immunology

A Candida auris-Specific Adhesin, Scf1, Governs Surface Association, Colonization, and Virulence

Ph.D., Microbiology and Immunology, 2024

M.S., Epidemiology, 2024

B.S., Microbiology, Weber State University, 2018

This dissertation's command of evolutionary and ecological reasoning, combined with its clinical import, is really thrilling. "A Candida auris-Specific Adhesin, Scf1, Governs Surface Association, Colonization, and Virulence," its title belies how interdisciplinary, novel, and comprehensive it is. Ultimately, this body of work shows how the pathogen C. auris drives healthcare-associated infections: it spreads by colonizing surfaces, and this dissertation identified a gene that regulates exactly that process. Not only does this dissertation include two elegant methods to validate the genetic basis of this regulation—building a new resource for ongoing genetic work in C. auris—but throughout the text, the dissertator demonstrates a deep curiosity about the evolutionary pressures that led to the emergence of this pathogen only a few decades ago. As one recommender noted, this dissertation will "serve as an example" for future students, and, based on how the dissertator writes about their enthusiasm for science, this Proquest Distinguished Dissertation Award is well-deserved. C. auris is a clinical and evolutionary puzzle, and this dissertation makes remarkable progress in resolving it.

Comments by Natalie Hofmeister, Ecology and Evolutionary Biology

Dissertation Committee:
Teresa O'Meara, Chair
Vernon Carruther
Evan Snitkin
Michael Bachman

Alejo Stark

Romance Languages and Literatures

Theory of the Encounter of Practices: Science, Art, and Politics in Latin America

Ph.D., Romance Languages and Literatures, 2024

M.A., Philosophy, 2020

Ph.D., Astronomy and Astrophysics, 2018

Sc.B., Physics, Brown University, 2013

B.A., Africana Studies, Brown University, 2013

Alejo Stark's Theory of the Encounter of Practices: Science, Art, and Politics in Latin America is a highly innovative and interdisciplinary dissertation that draws from and informs multiple scholarly traditions. Although ending with scientifically informed Zapatista socio-political practices, Stark's work itself emerges from a decolonial critique of well-accepted beliefs about the domineering impacts of scientific knowledge over more humanistic practical endeavors. Rather than merely overturning the binary of science and the humanities, Stark undermines the binary altogether by showcasing the ranges of interdisciplinary encounters that engender dominating and/or emancipatory effects. Besides the originality of its argument and approach, the dissertation also offers what the author himself theories as "an encounter of practices" by showing his wide range of expertise and knack in putting together cultural theory, philosophical inquiry, and scientific knowledge in critical and generative conversations that transcend and expand each discipline's individual boundaries. Stark ultimately puts forth what a couple of his recommenders describe as a "tour de force" of theory in practice.

Comments by Dina Mahmoud, Comparative Literature

Dissertation Committee:
Gavin Arnall, Chair
Laura Ruetsche
Kate Jenckes
Cristina Moreiras
Sergio Villalobos-Ruminott

Rodrigo Tinoco Figueroa

Earth and Environment Sciences

Hidden Patterns of Ray-Finned Fish Evolution: Bridging Paleontology and Neuroanatomy

Ph.D., Earth and Environmental Sciences, 2024

M.Sc., Ecology and Evolution,
Universidade do Estado do Rio de Janeiro, 2019

Bachelor in Biological Sciences,
Universidade do Estado do Rio de Janeiro, 2019

Tinoco Figeroa's dissertation explores the biological diversity of ray-finned fishes through the evolutionary development of neural soft tissue. Ray-finned fishes are a taxonomic class that includes almost half of all vertebrate life (c. 30,000 species). While already an achievement, Tinoco Figeroa's dissertation ambitiously takes on the task of grounding his research historically to examine evolution over the longue durée. His approach is both innovative and interdisciplinary. For example, Tinoco Figeroa includes evidence of ray-finned fishes from South America to counteract the predominant evidence from North America and Europe, which is bolstered by his inclusion of the fossil record. As a result, he can find evidence of the first ray-finned fish, and the oldest fossilized vertebrate brain, but he is also able to trace their evolution through soft tissue in the fossil record. The implications of his dissertation are twofold. It is the most comprehensive analysis of ray-finned fishes' evolutionary anatomy, and it reveals that fish brains are now better understood in the fossil record than in living species, thereby uncovering an unexpected gap in scientific knowledge. We would like to congratulate Tinoco Figeroa on his achievement by selecting his outstanding dissertation for an award.

Comments by Justin Miller, Classical Studies

Dissertation Committee:
Matt Friedman, Chair
Jeff Wilson Mantilla
Dan Fisher
Selena Smith
Hernan Lopez-Fernandez

Jennifer Triplett

Sociology

Shaping Subjectivities and Articulating Solidarity in Revolutionary Cuba

Ph.D., Sociology, 2014

M.A., Sociology, 2019

M.A., Latin American Studies, Tulane University, 2015

B.A., Classical Studies, Latin American Studies, and International Development, 2013

Jennifer Triplett's dissertation, Shaping Subjectivities and Articulating Solidarity in Revolutionary Cuba, is an outstanding project that seeks to understand how revolutionary projects achieve their ideological goals. Triplett's approach to political and ideological articulation goes beyond the usual understanding of revolutionary projects. The dissertation's theoretical intervention evidences the necessity to understand these projects as unfolding over time and the importance of paying attention to events that pose existential threats or, as Triplett calls them, "could-be crises." Drawing from rigorous archival work, Triplett's project unveils the inner logic and tensions within the Cuban Revolution. This dissertation not only does an excellent job exploring and interrogating ideological processes in Cuba but, more importantly, can be used for a comparative analysis of political and state projects.

Comments by Julio Villa-Palomino, Anthropology

Dissertation Committee:
Robert S. Jansen, Chair
Jaeeun Kim
Luciana de Souza Leao
Dan Slater

Emily Wearing

Chemistry

Development of New Visible-Light-Mediated Methods to Access Azetidines and Azetines

Ph.D., Organic Chemistry, 2024

B.Sc., Chemistry, California Polytechnic State University, 2019

Emily Wearing's dissertation, Development of New Visible-Light-Mediated Methods to Access Azetidines and Azetines, presents the discovery and development of new [2+2]-cycloaddition reactions. This type of reaction produces small molecules called azetines and azetidines, which have properties that make them highly desirable for drug design, but until now they have been difficult to synthesize. Wearing's work is a significant and creative contribution to the field: the class of compounds synthesized occurs in 59 percent of drugs currently on the market, and this discovery may lead to significant improvements in pharmacokinetics and drug metabolism. Portions of Wearing's dissertation were published in top journals, such as Science and the Journal of the American Chemical Society. For these reasons, the outstanding work of Wearing is being recognized with the ProQuest Distinguished Dissertation Award, and their future career is anticipated to be both illustrious and exciting.

Comments by Mina Magda, Slavic Languages & Literatures

Dissertation Committee:
Corinna Schindler, Chair
Melanie Sanford
Corey Stephenson
Timothy Cernak

Honorable Mentions

Audrey Drotos, Neuroscience
Mechanisms Underlying Complex Sound Processing in the Inferior Colliculus

Chongxing Fan, Climate and Space Sciences and Engineering
The Importance of Accurate Physical Parameterization for Radiative Transfer in Global Climate Simulations and Remote Sensing: Examples of Cloud Longwave Scattering and Solar Farm Modeling

Julian Grey, Musicology
Non-Binary Drag: A Trans Musicology of Sensation and Interperformativity*

Jessica Conrad Hammer, Mathematics
Identification, Verification, and Validation of Epidemiological Models in Public Health Practice

Matthew Hershey, History
Inclination Toward Death: Suicide, Sacrifice, and State Collapse in First World War Germany

Kate Kazmer, Civil and Environmental Engineering
Advancing Wastewater-Based Epidemiology Through a Mechanistic Understanding of Viruses in Wastewater

Jeffrey Knupp, Cellular and Molecular Biology
How the Endoplasmic Reticulum Promotes Autophagy with Insights Illuminating Basic Human Disease Mechanisms

Alex Lu, Information
Reimagining Safety and Surveillance with Eastside Detroiters

Hossein Moghimianavval, Mechanical Engineering
Intercellular Signaling and Intracellular Signal Processing: Looking Through the Lens of Synthetic Biology

Emily Na, American Culture
Speculative Recoveries: Contemporary Sites of Slavery and the Conditions of Memory

Distinguished Dissertation Award Nominees

Roxana-Maria Aras, Anthropology and History

Andrew Bernard, Anthropology

Kathryn Berringer, Social Work and Anthropology

Yuchen Chen, Communication and Media

Hsun-Wei Cho, Computer Science and Engineering

Tsai-Chin Cho, Epidemiology

Sean Donovan, Film, Television, and Media

Elisabeth Fertig, Comparative Literature

Jason Godfrey, English and Education

Fernando Gorab Leme, Classical Studies

Harsha Gouda, Biological Chemistry

Hojung Joo, Political Science

Alexander Kavner, Applied Physics

April Kriebel, Bioinformatics

Timothy Leonard, Middle East Studies

Zexiang Liu, Electrical and Computer Engineering

Rachel Logue Cook, Movement Science

Sicong Ma, Biophysics

Aarti Mathur, Chemical Engineering

Suchitra Pande, Mathematics

Meaghan Pearson, Education and Psychology

Erik Peterson, Cancer Biology

Michael Pitter, Molecular and Cellular Pathology

Thomas Power, Robotics

Mack Reynolds, Immunology

Shengpu Tang, Computer Science and Engineering

Taru Taru, Urban and Regional Planning

Varsha Venkatarangan, Molecular, Cellular, and Developmental Biology

Xiaokai Wang, Biomedical Engineering

Kate Weber, Health Infrastructures and Learning Systems

Katie Wong, Philosophy

Readers from the Michigan Society of Fellows

Zoë Berman
Afroamerican and African Studies

Ismael Biyahsev
History

James Boyko
Ecology and Evolutionary Biology

Ifolu David
Epidemiology

Elizabeth Durham
Anthropology

Natalie Hofmeister
Ecology and Evolutionary Biology

Anne Kort
Earth and Environmental Sciences

Paul Kurek
Germanic Languages and Literature

Mina Magda
Slavic Languages and Literature

Dina Mahmoud
Comparative Literature

Gembu Maryu
Biophysics

Justin Miller
Classical Studies

Sungwon Park
Nursing

Meghna Sapui
English Language and Literature

Henry Stoll
Musicology

Mo Torres
Sociology and Public Policy

Julio Villa-Palomino
Anthropology

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