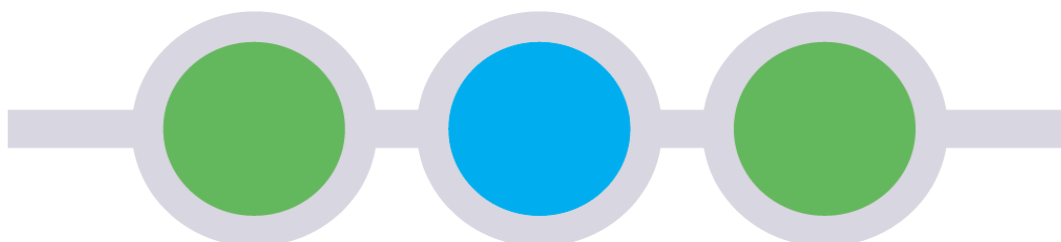


**∞ Guide to 2021**  
**Undergraduate Research and Arts Exposition ∞**

Wednesday, May 26 – Thursday, May 27, 2021 CST



**LINK TO ASYNCHRONOUS POSTER PRESENTATIONS, ORAL PRESENTATIONS, AND CREATIVE ARTS FESTIVAL ENTRIES**

[symposium.foragerone.com/nuexpo21](https://northwestern.zoom.us/j/95693923194)

- |                     |  |
|---------------------|--|
| WED 12:00-12:30 PM  | <b>Dr. Onnie Rogers Expo Keynote Address:</b><br><b>“Mentorship: Nurturing Relationships and Identities through Research” and Announcement of Fletcher URG and URAP Awards (Best Undergrad Research Projects of the Year)</b><br><a href="https://northwestern.zoom.us/j/95693923194">https://northwestern.zoom.us/j/95693923194</a> |
| WED 12:30-1:30 PM   | <b>Oral Presentation Q&amp;A Session One</b><br><b>The Experiences/Challenges of Living</b><br><a href="https://northwestern.zoom.us/j/94213503656">https://northwestern.zoom.us/j/94213503656</a>   |
| WED 4:00-5:00 PM    | <b>Oral Presentation Q&amp;A Session Two</b><br><b>The Impact of Health and Education</b><br><a href="https://northwestern.zoom.us/j/97848106457">https://northwestern.zoom.us/j/97848106457</a>   |
| WED 5:00-6:00 PM    | <i>Forward, A Story About Learning and Growth</i><br><b>Film Screening &amp; Discussion with Dr. Haoqi Zhang</b><br><a href="https://northwestern.zoom.us/j/93721153983">https://northwestern.zoom.us/j/93721153983</a>  |
| THURS 12:00-1:00 PM | <b>Oral Presentation Q&amp;A Session Three</b><br><b>Advances in Science and Technology</b><br><a href="https://northwestern.zoom.us/j/91043688452">https://northwestern.zoom.us/j/91043688452</a>   |
| THURS 4:00-5:00 PM  | <b>Oral Presentation Q&amp;A Session Four</b><br><b>Understanding Our World</b><br><a href="https://northwestern.zoom.us/j/96499825193">https://northwestern.zoom.us/j/96499825193</a>   |

Dear Members of the Northwestern Community:

Northwestern has demonstrated incredible resilience this year. Faced with unprecedented personal, professional and academic barriers, students and faculty continued to learn and help the world. Nowhere is Northwestern's spirit of perseverance more evident than the Undergraduate Research and Arts Exposition, which takes place remotely for the second year in a row.

I am particularly heartened by how our faculty, dealing with their own individual circumstances, continue to focus on supporting the goals and passions of undergraduate students. We thought we might see a downturn in undergraduate involvement in research this year, but that did not turn out to be the case. In fact, the 2021 Summer Undergraduate Research Grant program recently funded the second-highest number of grants in its 18-year history, and we are excited to see opportunities continue to expand in the humanities and creative arts. In addition to Northwestern's strong support of traditional research environments, the Office of Undergraduate Research (OUR) has committed more than \$100,000 to creative arts projects each year for the past four years, a remarkable accomplishment that supports the artistic development of our students.

OUR also earned a grant this year from the Arthur Vining Davis Foundations to continue its support for undergraduate research opportunities in the arts and humanities, and I am particularly pleased with this grant's focus on serving our first-generation and lower-income students, students of color, and students from other underrepresented populations. As part of this work, OUR has recently selected its first cohort into the new Emerging Scholars Program. The program pairs first-year students with faculty as part of a 15-month funded program in which the students start as research assistants and, by next summer, will conduct independent research and creative arts projects in the areas of social justice, diversity, inclusion and equity. Please join me in celebrating the first faculty-student pairs: Professor Sarah Bartolome (Bienen) and Alexi Chavez (Bienen); Professor Joshua Chambers-Letson (SoC) and Olivia Pierce (WCAS); Professor Mesmin Destin (SESP/WCAS) and Krissy McGee (WCAS); Professor Myrna Garcia (WCAS) and Janitza Luna (WCAS); Professor Liz Gerber (MCC/SoC) and Shubhanshi Gaudani (MCC); Professor Jolie Matthews (SESP) and Sasha Benson (SESP); Professor Onnie Rogers (WCAS) and Joelle Moore (WCAS); Professor Shirin Vossoughi (SESP) and Zindeh Scere (SESP); Professor Adriana Weisleder (SoC) and Anika Velasco (WCAS); and Professor Kelly Wisecup (WCAS) and Rivers Leche (WCAS). The Undergraduate Research and Arts Exposition will no doubt be a part of those students' future.

I want to thank Peter Civetta, Director of Undergraduate Research, and the entire OUR staff for their continued outstanding support of undergraduate research at Northwestern. Their annual Expo is designed to celebrate the amazing accomplishments of our students. Through poster presentations, oral presentations and our Creative Arts Festival, the Expo is the largest and most diverse student conference event on campus. We are immensely proud of these students' accomplishments, especially given the complexities of the pandemic this year. Their presentations and performances are a sterling testament to the intelligence, creativity and toughness of our talented student body. I hope that you will enjoy their work as much as I do.

Sincerely,

Kathleen Hagerty  
Provost and Professor

# INAUGURAL EXPO KEYNOTE ADDRESS

WEDNESDAY 12:00-12:30 PM CST

<https://northwestern.zoom.us/j/95693923194>



Dr. Onnie Rogers

## **“Mentorship: Nurturing Relationships and Identities through Research”**

Dr. Onnie Rogers is an Assistant Professor of Psychology at Northwestern University where she directs the [DICE lab \(Development of Identities in Cultural Environments\)](#). A developmental psychologist and identity scholar, Rogers is interested in social and educational inequities and the mechanisms through which macro-level disparities are both perpetuated and disrupted at the micro-level of identities and relationships. Her projects focus on how children and adolescents make sense of their racial, ethnic and gender identities; how cultural stereotypes and expectations shape the development and intersectionality of these identities; and the ways in which multiple identities influence adolescents’ social-emotional and academic outcomes. Rogers earned her PhD in developmental psychology from New York University and holds a BA in psychology and educational studies from the University of California, Los Angeles (UCLA). She is also on the Northwestern Office of Undergraduate Research Advisory Council.

You can find more information about her and her lab here:

<https://sites.northwestern.edu/thedicelab/people/>

# Forward: A Story About Learning & Growth

## FILM SCREENING & DISCUSSION

WEDNESDAY 5:00-6:00 PM CST

<https://northwestern.zoom.us/j/93721153983>



**Abstract:** We'll be screening a documentary short film following Northwestern University's Design, Technology, and Research (DTR) program led by associate professor Haoqi Zhang. The film follows graduate and undergraduate students and their faculty mentor in DTR for two quarters, to look at the practices of a community-based research lab. Students self-direct their own research projects in human computer interaction while also learning about their own work process and metacognitive blockers to completing their work. The film focuses on the process by which students work to overcome individual struggles that prevent them from moving forward to make project progress and grow as people. Students work individually but within a community to find ways to seek help from each other, learn from others' experiences, and support one another. By reflecting on their own practices and work processes, students grow personally throughout their time in this community. The ultimate goal of DTR is for students to discover what it's like to pursue work that is meaningful to their own values and goals. *The screening will be followed by a Q&A with the filmmakers, student participants of the class, and discussion with the audience.*

**Haoqi Zhang** is an associate professor in Computer Science and Design at Northwestern University. He founded and directs the [Design, Technology, and Research](#) (DTR) program, which provides an original model for research training.

**Sarah Hanson** is a director and producer with [Furnace FPS](#). Forward is her second independent documentary project and first in which she held a directorial role.

**Sergio Salgado** is a director and cinematographer with [Furnace FPS](#) which he founded in 2011. He has worked on feature documentaries, such as Forced Perspective (2015) and Grit & Grain (2016).

## Oral Presentation

### Question and Answer Session One

**The Experiences/Challenges of Living**

Wednesday, May 26<sup>th</sup> 12:30-1:30pm (CST)

<https://northwestern.zoom.us/j/94213503656>

**Farina Amir, Inaara Gangji, and Khadija Islow**, “ChangEd Digital Marketing Strategy”

**Katherine Daehler**, “Life on the Edge: The Impact of Status, Class, and Stigma on Patterns of Middle-Class Welfare Use”

**Emily Holtzman**, “Objects of Influence: Sacrality and Native American Material Culture Across Five Contexts”

**Caroline Hsu**, “Strangest Things: Nostalgia vs. Representation in ‘Kids on Bikes Media’”

**Ginny Ip**, “The Impact of Climate Change on Energy Poverty: Evidence from the European Union, 2004-2019”

**Diamond Jones**, “‘Friends With A Girl Like Me:’ Girlhood in Japanese Horror Video Games”

**Janitza Luna and Joyce Wang**, “Modernist Displays of ‘Mestizo’ Identity in Covarrubias’ *Mexican Street Scene*”

**Aran Mehta**, “The Hindu Rashtra Meets Dar al-Islam: The Impact of Hindu Nationalism on India’s Relations with Muslim-Majority Countries”

**Sue Um**, “A History of Women in Documentary”

**Chloe Wong**, “Radical Caring: A Qualitative Study on the Role of Frontline Workers in Eradicating Gender Violence in Asian American Communities”

## Oral Presentation

### Question and Answer Session Two

#### The Impact of Health and Education

Wednesday, May 26<sup>th</sup> 4:00-5:00pm (CST)

<https://northwestern.zoom.us/j/97848106457>

**Karina Aguilar**, “Examining the Relationship Between Maternal Education and Pediatric Nutritional Health in Guatemala: Questioning the Role of Maternal Health Knowledge and Practices”

**Myles Bowen**, “Perpetual Violence and Livable Resistance: Historicizing Louisiana’s Toxically Fertile ‘Cancer Alley’”

**Annamarie Jedziniak**, “A Case Study of Maternal Health Policies Production of a Positive Pregnancy Experience in Australia, New Zealand, and Ireland”

**Anika Nerella**, “The Role of Demographics as a Determinant of Community Health Concerns”

**Rachel Okine**, “The Time Is Now: Assessing Fertility Knowledge, Reproductive Concerns and Desire for Fertility Education in Undergraduates”

**Leo Sainati**, “How Does the Level of Cultural Similarities Between Refugees and Hosts Impact Social Integration?”

**Natalie Tomeh**, “The Impact of SNAP and P-EBT in the Wake of COVID-19”

**Leonardo Trigo**, “COVID-19 Vaccine Attitudes Among Native People”

**Liam Warner-Shifflett**, “Maternal and Paternal Depression Symptoms During the NICU Stay, Transition Home, and First 30 Days”

**Catherine Xu**, “Dam-Displaced Populations Experience Significantly Higher Household Water Insecurity, Food Insecurity, Depression, and Domestic Violence due to Construction of the Thwake Multipurpose Dam in Makueni County, Kenya”

## Oral Presentation

### Question and Answer Session Three

Advances in Science and Technology

Thursday, May 27<sup>th</sup> 12:00-1:00pm (CST)

<https://northwestern.zoom.us/j/91043688452>

**Henry Abrahamson**, “Performance Testing of Accelerated Dynamic Average Consensus”

**July Chen**, “Heterogeneity of Virulence Gene Expression in Salmonella Typhimurium”

**Anna Davis**, “Vesicle-Based Sensors for Extracellular Potassium Detection”

**Lucy Liu**, “The Role of Intrinsically Photosensitive Retinal Ganglion Cells - Perihabenular Region Circuit in Visual Threat Anticipation”

**Patricia Lohman-Meza**, “Improving Ambient Stability of Nickel-Rich Lithium-Ion Battery Cathode Materials via Polymer and Graphene Coating”

**Othman Muhammad**, “An Application of Bayesian Autologistic Actor Attribute Models (ALAAM) to Study Social Networks and Their Influence on Human Behavior in Rural Kenya”

**Izabela Staniewicz**, “Development and Assessment of a Hydrocephalus Shunt Flow Monitor”

**Catherine Walker**, “Energy Generation by Saltwater Motion on Metal Nanolayers”

**Titobioluwa Williams**, “Entering the Black Box: Looking at Pretrial Risk Assessments’ Machine Learning Process”

**Jade Zhang and Mercedes Sandu**, “Constructing Convex Polyhedra by Applying Gaussian Curvature to Pentagons”



## Oral Presentation

### Question and Answer Session Four

Understanding Our World

Thursday, May 27<sup>th</sup> 4:00-5:00pm (CST)

<https://northwestern.zoom.us/j/96499825193>

**James Arcieri**, “Assessment of New York's Clean Energy Targets: Exploring the Viability of the CLCPA”

**Julia Borrelli**, “Inter-Peer Social Influence on Post-Graduation Opportunity: Exploring How Peer-to-Peer Social Networks Can Influence the Trend Between the Freshmen on Track, Graduation, and College Enrollment Metrics in the Chicago Public High Schools”

**Kendall Gail**, “‘It's Me. I'm All You Have.’ An Examination of Authoritarian Electoral Propaganda Used by Donald Trump and Augusto Pinochet to Target Female Voters”

**William He and Emily Mansell**, “Mathematical Modeling to Forecast U.S. Elections”

**Louis Ingram**, “The Effect of Authorship and Typographic Errors on the Evaluation and Trust of Text”

**Akie Kadota**, “The Effect of Remote Learning on Secondary Ensemble-Based Music Education”

**Christina Kim**, “Of Horses and Propensity: Exploring Close Counterfactuals”

**Christopher Mazurek**, “Entering Dreamland: Infusing Signals into a Dream to Produce Awareness of Dreaming”

**Olufemi Shakuur Nyabingi**, “Does Joint Engagement Relate to Toddlers’ Language Abilities Even in Diverse Home Environments?”

**Joy Zheng**, “Emojis and The Interpretation of Text Messages Between Friends and Between Acquaintances”



## Asynchronous Poster Presentations

1. **Nicholas Abushacra**, “Determinants of Employment Rates”
2. **Rahma Almajid**, “Language Influence from Siblings”
3. **Rohil Bahl**, “COVID-19's Impact on Workplace Teams”
4. **Adina Barg**, “Better Understanding Preschool Discipline”
5. **Anjelique Bomar and Maya Davis**, “Children and Parents Coding Together”
6. **Sophie Boorstein**, “Black-Owned Businesses in 2020 Englewood”
7. **Eliana Buckner**, “Medical Mergers and Insurance Quality”
8. **Becky Chen**, “Implicit Learning Flexibility”
9. **Ace Chisholm**, “Ovid Writing Nostalgia”
10. **Hannah Cohen**, “Emotions in Friendship and Mental Health”
11. **Ella DeBode**, “Social Contagion of Knowledge”
12. **Amil Dravid**, “Towards Robust Image Classification”
13. **Harita Duggirala**, “Machine Learning and Zebrafish Skin”
14. **Georgia Dutra**, “Symbolic Exchanges in Portuguese”
15. **Sarah Eisenman**, “Gender and Race: GQNB Experiences”
16. **Jack Ferry**, “Economic Conditions and Suicide”
17. **Adia Fielder**, “‘Nasty Names:’ Black Adolescent Discussions of Sexuality”
18. **Abigail Furdak**, “Framing and Decision-Making During COVID”
19. **Meghna Gaddam**, “Homeless Menstruation: A Construction of Embodied Experiences and a Breakdown of Amplified Psychosocial Issues”
20. **Josh Genender**, “Stable Dynamics in Asymmetric Systems”
21. **Leah Gentner**, “Ankle Movement Indicators for CP”
22. **Courtney Goldenberg**, “Online Fitness: Women's Mood and Body Image”
23. **Jingxuan Gong**, “Compare Hemodynamic Lag Estimate Methods”
24. **Jill Hsu**, “How Activity Affects Memory”
25. **Angelina Jaglinski**, “Fractal Representation of a Coastline”
26. **Samyak Jain**, “Economic Variables, Traffic Fatalities”

27. **Samuel Jung**, “Complex Timesteps in Numerical Methods”
28. **Vaynu Kadiyali and Han Lee**, “Investigating Side-by-Side Coaching”
29. **Isabelle Kang**, “Early Movements in Cerebral Palsy”
30. **Minsoo Kang**, “Household Definition”
31. **Johanna Kann**, “Pipeline for Bacteria Organelle Analysis”
32. **Denise Kao**, “Isolated Finger Movement and CP”
33. **Michelle Kee**, “Infant Arm Joint Movements Analysis”
34. **Kayan Khraishah**, “The Rise of Eco-Islam”
35. **Andrew Kindseth**, “The Nonlocal SQUID Magnetometer”
36. **Anya Kirsch**, “The Illusory Truth Effect”
37. **Andrew Laeuger**, “Micron-Scale Capacitive Distance Measurements”
38. **Shannon Lally**, “Irish Language Revitalization”
39. **Madeline Lane**, “Zooming Through the College Experience: How Emerging Adults Approach the COVID-19 World”
40. **Jay Lawrence**, “Conformational Study of Phenolic Amines”
41. **Kate Lawson**, “Information and Social Media”
42. **Christopher Lee**, “Circadian Timing of Eating and Exercise”
43. **Maxwell Lee**, “Creation of Alzheimer's Disease Probes”
44. **Unsun Lee**, “Protein Network Computational Modelling”
45. **Edward Li**, “Identification of Novel lncRNAs”
46. **Julia Lowenthal**, “The Romanticization of Intimate Violence”
47. **Madison Luce**, “Validating Genetic Tools for ipRGCs”
48. **Shayan Malik**, “‘Asiatics’ in Chautauqua”
49. **Sydney Matrisciano**, “Threadpainted Landscapes”
50. **Ellie McCarthy**, “Spatial Assessment for Zoom”
51. **Stephanie McCarty and Paige Smyth**, “Girls’ Computer Science Self-Efficacy”
52. **Tommy McGing**, “Superfund Sites' Impact on Cancer Rates”
53. **Alka Meresh**, “Attributing Blame During the Coronavirus”
54. **Lauren Miller**, “Spanish-English Bilingual Book Sharing in Latino Families”
55. **Eric Min**, “Visual Circuits for Threat Anticipation”

56. **Imani Minor**, “Patriarchal Constraints on Girlhood”
57. **Allison Mo**, “TCM in Western Contexts”
58. **Lexie Modeas**, “Variables Impacting Vaccination Rates”
59. **Michael Montoya**, “Soil Quality of Cedar Glade Habitats”
60. **Madelyn Moy**, “Gut Microbes, Immune Markers, Pregnancy”
61. **Semanti Naiken**, “Infant Leg Movement and Cerebral Palsy”
62. **Sam Nguyen**, “On Grammatical Sensitivity”
63. **Hannah Oelschlager**, “Developing MEK4 Inhibitors”
64. **Desmond O'Shaughnessy**, “Efficacy of Rainfall Index Insurance”
65. **Max Paik**, “Drying Colloidal Suspensions”
66. **Akash Palani**, “Indian Americans and Hindutva”
67. **Harlym Pike**, “Body Positivity on Instagram”
68. **Gabrielle Plotkin**, “American Jewish Environmentalism”
69. **Lauren Reynolds**, “Determination of Acceptable Speech”
70. **Ahan Sahu**, “Brokerage behaviors in Organizations”
71. **Lucas Sant'Anna**, “Non-Specific Binding of Ni-NTA”
72. **Nathan Schimpf**, “Modeling ICMS in Area 2”
73. **Emily Shteynberg**, “USSR Immigrants and Mental Health”
74. **Jami Silverman**, “Just World Hypothesis and Terrorism”
75. **Ahmadu Simpson**, “Personality and Spirituality”
76. **Shreya Sriram**, “Spontaneous Auditory Neuron Activity”
77. **Regan Steigleder**, “Paleotemperature Reconstruction of YD”
78. **Chase Stokes**, “Affordances Between Visualization Design”
79. **Simon Su**, “Civilian Oversight and Police Misconduct”
80. **Selena Suarez**, “Online Platform Team Formation Dynamics”
81. **Charlie Sutcuoglu**, “Gender Surgeries in the US and Thailand”
82. **Kaloyan Valchev**, “COVID-19 Economics and Policies”
83. **Roslyn Valdespino**, “Neonatal Euthanasia and Morality”
84. **Victoria Vizzini**, “Impact of Accent on Language Processing”
85. **Danyi Wang**, “Biophysical Forces on VSMC Phenotype”

86. **Victor Wang**, “Firm Partisanship and Tariff Exclusions”
87. **Madeleine Ward**, “Online Sneaker Communities Social Impact”
88. **Finn Wintz**, “[T]hats just how the game is’: How Black and White Parents Think about Systemic Racial Structures”
89. **Tara Wu**, “Deciduous Forest Senescence Rates”
90. **Jessica Xia**, “Food Cues and Brain-to-Gut Communication”
91. **Catherine Xu**, “Psychosocial and Nutritional Health Consequences of Dam Construction in Makueni County, Kenya”
92. **Anna Yang**, “Intersectional Traumas: Gendered Resilience in Post-Apartheid COVID-19”
93. **Michael Zhou**, “High School Activities and Academic Success”

# Creative Arts Festival

**Lalla-Aicha Adouim** – *Dinnertime* (Short Story)

**Julia Borrelli** - *Washed Away: Come Towards* for String Quartet (Composed Music)

**Ace Chisholm** – *Ovid, to Rome from Afar* (Graphic Novel)

**Juyoung Choi and Saad Ejaz** – *Home to Home: How a Yemeni Refugee Found Love in South Korea* (Documentary Film)

**Princess Collado and Mohammed Al-Khulaifi** – *Of Things That Shouldn't Be* (Cinematic Poetry)

**Kayan Khraisheh** – *Work in Progress* (Short Story)

**Sydney Matrisciano** – *Whitewashed: The Impact of Whiteness in Mississippi Landscapes* (Embroidered Photography)

**Xinyuan (Joyce) Pu** – *A Flower Explodes* (Staged Reading)

**Peach (Ganpicha) Sahasakul** – *My Mother Fled to the Submerged Palace* (Animated Short Film)

**Emmet Smith, Ruchir Khazanchi, and Michael-Ellen Walden** – *A Bridge to the Moon* (Musical Theater Film)

**Hank Yang** – *The Generic Fish* (Drawing)

**Erin Zhang** – *These Days* (Animated Short Film)



## Professional Jury

**Tara Mallen**, Rivendell Theatre  
**AJ Links**, Pascal-Rudnicke Casting  
**Charles Murphy**, Chicago Musician  
**Mickie Pascal**, Pascal-Rudnicke Casting

