# Chia-Hung **Yang**

Network Scientist Studying Evolution and Emergent Behavior

*1914 Beacon Street, Unit 3, Brighton, Massachusetts 02135, USA*

(+1) 617-902-8725 | yang.chi@northeastern.edu | chiahungyang.netlify.com | chiahungyang | chiahungyang

## Education

**Northeastern University** — *Boston, MA, United States*

Ph.D. in Network Science — *Sep. 2016 - PRESENT*

*Advisor*: Prof. Samuel V. Scarpino

**National Tsing Hua University** — *Hsinchu, Taiwan*

B.S. in Physics — *Sep. 2011 - Jun. 2015*

*Thesis Advisor*: Prof. Kuo-An wu

## Experience

**Emergent Epidemic Lab, Northeastern University** — *Boston, MA, United States*

Research Assistant — *Sep. 2017 - PRESENT*

- Formulated a population-genetics modeling approach for the evolution of gene regulatory networks
- Investigated new insights from gene network evolution on traditional evolutionary theories

**Network Science Institute, Northeastern University** — *Boston, MA, United States*

Research Assistant — *Sep. 2016 - Aug. 2017*

- Developed a mechanistic model that elucidated widely observed temporal patterns in ecological and financial systems

**Condensed Matter Theory Group, Department of Physics, National Tsing Hua University** — *Hsinchu, Taiwan*

Research Assistant — *May 2014 - Jun. 2015*

- Analyzed and predicted the characteristic length scale of pattern formation in interacting prey-predator systems

## Publications

**The effect of human mobility and control measures on the COVID-19 epidemic in China** — *May 2020*

Kraemar MUG, **Yang CH**, Gutierrez B, Wu CH, Klein B, Pigott DM, Open COVID-19 Data Working Group,Plessis LD, Faria NR, Li R, Hanage WP, Brownstein JS, Layan M, Vespignani A, Tian H, Dye C, Cauchemez S, Pybus OG, & Scarpino SV

*Science 368(6490): 493–497*

## Presentations

### Talks

**Mutation-Selection Balance of Gene Regulatory Circuits** — *Providence, RI, United States*

Evolution 2019 — *Jun. 2019*

**Population-Genetics Modeling of Gene Regulatory Networks** — *Burlington, VT, United States*

Network Models in Cellular Regulation Symposium, NetSci 2019 — *May 2019*

**Ensemble of Gene Regulatory Networks Consequent to Evolutionary Processes** — *Burlington, VT, United States*

Statistical Inference on Network Models Symposium, NetSci 2019 — *May 2019*

**Emergence of Laplace-Distributed Growth Rates in Network Dynamics** — *Boston, MA, United States*

APS March Meeting 2019 (American Physical Society March Meeting) — *Mar. 2019*

**Reproductive Barriers Results from Gene Regulatory Evolution** — *Montpellier, France*

2nd Joint Congress on Evolutionary Biology — *Aug. 2018*

**Reproductive Barriers Results from Gene Regulatory Evolution** — *Nahant, MA, United States*
3rd Annual Marine Science Center Graduate Student Symposium — *May 2018*

**Emergence of Laplace-Distributed Growth Rates in Complex Systems** — *Boston, MA, United States*
9th Complenet (International Conference of Complex Networks) — *Mar. 2018*

**Pattern Formation in Interacting Prey-Predator Systems** — *Hsinchu, Taiwan*
Complex System Symposium at National Center for Theoretical Science — *May. 2015*

### Posters

**Ensemble of Gene Regulatory Networks Consequent to Evolutionary Processes** — *Burlington, VT, United States*
NetSci 2019 (International School and Conference on Network Science) — *Jun. 2019*

**Ensemble of Gene Regulatory Networks Consequent to Evolutionary Processes** — *Cold Spring Harbor, United States*
Cold Spring Harbor Laboratory Network Biology Meeting 2019 — *Mar. 2019*

**Speciation Results from Gene Network Evolution** — *Yokohama, Japan*
SMBE 2018 (Annual Meeting of the Society of Molecular Biology and Evolution) — *Jul. 2018*

**Speciation Results from Gene Network Evolution** — *Paris, France*
NetSci 2018 (International School and Conference on Network Science) — *Jun. 2018*

**Speciation Results from Gene Regulatory Network Evolution** — *Boston, MA, United States*
NetSci 2018 (International School and Conference on Network Science) — *Mar. 2018*

**Linear Stability Analysis for Interactive Prey-Predator Systems** — *Hsinchu, Taiwan*
The Physical Society of Republic of China (Taiwan) Annual Meeting — *Jan. 2015*

## Honors & Awards

2017 **SYNS Travel Grant,** Society of Young Network Scientist, NetSci 2017 — *Indianapolis, IN, United States*

## Professional Service

**Outreach Coordinator**
Graduate Student Association of Network Science — *May 2018 - PRESENT*

**Co-Organizer**
2nd Annual Network Science Research Symposium — *Jun. 2019 - Nov. 2019*

**Co-Organizer**
1st Annual Network Science Research Symposium — *May 2018 - Nov. 2018*

**Voluntary Lecturer**
Network Science Graduate Student Bootcamp — *Aug. 2017, 2018, & 2019*

**Reviewer**
Physical Review E, Entropy, & Scientific Reports

**Translator**
Complexity Explained Booklet (Traditional Chinese) — *complexityexplained.github.io*

## Outreach

**Open NetSci Hackathon 2019** *Burlington, VT, United States*

Participant of the Converting Network Format Project *May 2019*

- Developed netconv, a command-line lightweight graph format converter

**DataHack@Yale 2017** *New Haven, CT, United States*

Participant of the McChrystal Group *Feb. 2017*

- Visualized organizational cooperation networks and spotlighted influencers

## Skills

**Programming Languages** Python, R, Julia, C/C++, LaTeX, SQL
Traditional Chinese, English

## Open Source Software

**netrd — Comparing Graph Distances between Network Reconstructions**

Co-Developer *github.com/netsiphd/netrd*

- Implemented reconstruction methods and dynamics simulators on networks

**netconv — Converting Network Data Formats**

Co-Developer *github.com/netsiphd/netconv*

- Designed core data structure and implemented file format converters

## Organization Membership

American Physical Society, Network Science Society, Society of the Study of Evolution, and Society of Young Network Scientists.