

Ruiran Xun

curriculum vitae

xun.ruiran@gmail.com | (703) 944-9705 | <https://www.linkedin.com/in/ruiran-xun/>

SCIENCES

EDUCATION

Carnegie Mellon University

Pittsburgh, PA

Bachelor of Science in Chemistry, Additional Major in Computer Science

May 2022

Cumulative QPA: 3.91/4.00 (as of August 2020)

Chemistry courses: Honors Chemistry, Inorganic Chemistry, Modern Organic Chemistry
Introduction to Chemical Analysis, Organic Synthesis and Analysis

CS courses: Matrices and Linear Transformations, Calculus in Three Dimensions
Probability, Great Ideas in Theoretical Computer Science
Principles of Imperative Computation, Introduction to Computer Systems
Principles of Functional Programming

Thomas Jefferson High School for Science and Technology (TJHSST)

Alexandria, VA

Advanced Studies Diploma

June 2018

Relevant courses: AP Chemistry, Organic Chemistry
Multivariable Calculus, Complex Analysis, Differential Equations
Artificial Intelligence I & II, Web App Design, Computer Systems Lab

RESEARCH EXPERIENCE

Noonan Group – Carnegie Mellon University, Pittsburgh, PA

May 2019 – present

- Conducted research through the CMU Summer Undergraduate Research Apprenticeship
- Investigates novel syntheses of cations that functionalize anion exchange membranes
- Utilizes standard organic synthesis techniques as well as GPC, H-NMR, and IR analysis

Porco Group – Boston University, Boston, MA

Jul 2017 – Aug 2017

- Conducted studies towards a novel synthesis of indoles with concurrent group migration
- Investigated a new reaction pathway inspired by an unexpected result in mentor's work
- Worked up reactions and employed H-NMR, C-NMR, and UPLC-MS analysis

WORK EXPERIENCE

Lead Teaching Assistant – Carnegie Mellon University, Pittsburgh, PA August 2020 – present

- Lead teaching assistant for 15-122: Principles of Imperative Computation (Fall 2020)
- Manages course logistics and infrastructure in order to ensure the course runs smoothly
- Coordinates a team of 35+ teaching assistants and onboards new teaching assistants
- Responsibilities also include those listed below under "Teaching Assistant"

SWE Intern – Network Medical Management, Alhambra, CA

Jun 2020 – Aug 2020

- Designed and implemented a full-stack web portal from scratch for use by physicians
- Collaborated with business users and executives to add functionalities relevant to end users
- Utilized Bootstrap/jQuery/JsRender for front-end and Flask/SQLAlchemy for backend

University Board Member – Carnegie Mellon University, Pittsburgh, PA Mar 2019 – present

- Serves on the Academic Review Board (ARB) and University Disciplinary Committee (UDC)

Teaching Assistant – Carnegie Mellon University, Pittsburgh, PA

Aug 2019 – May 2020

- Teaching assistant for 15-122: Principles of Imperative Computation (Fall 2019, Spring 2020)
- Assists in teaching code correctness, data structures, and algorithms to over 500 students
- Leads recitations and labs, facilitating a collaborative environment for student learning
- Guides student understanding of concepts and assignments one-on-one in office hours

Content Writing Intern – Expjii, Inc., Pittsburgh, PA **Sep 2018 – May 2019**

- Created educational content aimed at a target demographic of high school students
- Authored problems, solutions, and topic explanations in mathematics, primarily Algebra 1
- Assisted in creation of mathematics curricula based upon existing pedagogical research

Head Chemistry Teaching Assistant – TJHSST, Alexandria, VA **Jun 2018 – Jul 2018**

- Facilitated communication between teachers and other TAs
- Kept in correspondence with parents of students regarding the summer curriculum
- Created quizzes and other review materials to provide to the 130-student class
- Responsibilities also included those listed below under “Chemistry Teaching Assistant”

Chemistry Teaching Assistant – TJHSST, Alexandria, VA **Jul 2016 – Aug 2016**

- Helped teach the Honors Chemistry I curriculum in an accelerated timeframe of 5 weeks
- Worked with students to support them in better understanding chemistry concepts
- Devised and taught a unit on organic chemistry alongside other TAs

LEADERSHIP

Secretary – Scotch'n'Soda Theatre, Pittsburgh, PA **May 2019 – May 2020**

- Oversaw production of six to seven shows per academic year by over 200 active members
- Communicated key events and information to general membership weekly through emails
- Connected with members of current productions to proactively identify/remedy conflicts

Logistics Officer – CMIMC Organizing Team, Pittsburgh, PA **May 2019 – May 2020**

- Oversaw the operations of the Carnegie Mellon Informatics and Mathematics Competition
- Coordinated scheduling of 400+ high school participants over multiple competition rounds

PROJECTS

Personal Website **2020**

- Created responsive design using Bootstrap Studio, then fine-tuned the HTML and CSS
- Deployed to Github Pages through a custom domain; secured using Comodo PositiveSSL

FoodMood **2020**

- Successful final round application submission to Capital One's Software Engineering Summit
- Utilized Bootstrap, Esri's ArcGIS API, HTML5 Geolocation, and the Yelp API

Cleversign: A Real-Time American Sign Language Interpreter **2018**

- Built a classifier that outputs English letters given visual webcam input of ASL hand signs
- Retrained Google's Inception-V3 convolutional neural network (CNN) using TensorFlow
- Utilized OpenCV for image preprocessing, i.e. isolating the hand's shape in each frame

POSTERS

Studies Towards a Novel Synthesis of Indoles with Concurrent Group Migration **2017**

- Poster based upon work done as an intern at Boston University during the summer of 2017
- Presented at Poster Symposium for BU's Research in Science & Engineering (RISE) program

AWARDS

Fellow – Rewriting the Code **Aug 2020 – Aug 2021**

SKILLS

<u>Laboratory:</u>	H-NMR, C-NMR, IR, UPLC-MS, GC-MS, GPC
<u>Programming languages:</u>	C, Java, Python, SML, LaTeX, HTML/CSS/Javascript, SQL
<u>Libraries/frameworks:</u>	Bootstrap, Flask, jQuery, SQLAlchemy
<u>Languages:</u>	Fluent in English and Chinese, conversant in Spanish
<u>Tools:</u>	Bootstrap Studio, Adobe XD, Adobe Lightroom, GIMP

MUSIC

PROFESSIONAL EXPERIENCE

Rehearsal Pianist – CMU School of Music, Pittsburgh, PA **Nov 2019 – Apr 2020**

- Played for coachings, staging rehearsals, and tech runs of *The Light in the Piazza* (January 2020) and *The Turn of the Screw* (April 2020)

Resident Artist Pianist – Pittsburgh Festival Opera, Pittsburgh, PA **Jun 2019 – Jul 2019**

- Assisted the music direction of multiple new works, including *Mr. Rogers' Operas*
- Contributed to MainStage programming and sound engineering logistics
- Played for coachings, recitals, and cabarets in the Young Professional Artists Program

PRODUCTIONS

Opera

<i>The Turn of the Screw</i>	Rehearsal Pianist	CMU School of Music	2020
<i>Virgula Divina</i> ¹	Conductor/Pianist	Pittsburgh Festival Opera	2019
<i>Night Flight of Minerva's Owl</i> ¹	Show & Rehearsal Pianist	Pittsburgh Festival Opera	2019
<i>Die Liebe der Danae</i>	Show Pianist	Pittsburgh Festival Opera	2019
<i>Mister Rogers' Operas</i>	Assistant MD/Pianist	Pittsburgh Festival Opera	2019

Musical Theatre

<i>Side by Side by Side</i> ¹	Music Director/Pianist	Scotch'n'Soda Theatre	2020
<i>This Side Up</i> ^{1, 3}	Show & Rehearsal Pianist	CMU School of Music	2020
<i>The Light in the Piazza</i>	Rehearsal Pianist	CMU School of Music	2020
<i>Birds & Beansprouts</i> ^{2, 3}	Show & Rehearsal Pianist	CMU School of Drama	2019
<i>Catch Me If You Can</i>	Show Pianist	Scotch'n'Soda Theatre	2019
<i>High School Choosical</i> ^{2, 3}	Show & Rehearsal Pianist	New Works Coffeehouse	2019
<i>Miscast Cabaret</i>	Show & Rehearsal Pianist	Scotch'n'Soda Theatre	2019
<i>MAMMA MIA!</i>	Music Director/Pianist	Scotch'n'Soda Theatre	2019
<i>Sweeney Todd</i>	Rehearsal Pianist	Scotch'n'Soda Theatre	2018
<i>11th Annual Benefit Cabaret</i>	Show & Rehearsal Pianist	Scotch'n'Soda Theatre	2018
<i>Mary Poppins</i>	Show & Rehearsal Pianist	TJHSST Drama	2018

¹ scenes/excerpts of full work

² staged reading

³ student-written new work

EDUCATION

Carnegie Mellon University

Minor in Collaborative Piano

Relevant coursework:

- Collaborative Piano (playing for studio voice lessons and coachings)
- English/Contemporary Literature and Repertoire
- Italian Diction

Pittsburgh, PA

May 2022

SKILLS

Instruments: piano, violin, mallet percussion

Technical: MainStage 3, GarageBand, Dorico 3

PERFORMANCES

Carnegie Mellon University School of Music

- Joe Brauch's Junior Composition Recital (2019). Performed his solo *Piano Sonata No. 1* and played in his chamber ensemble piece *Mischief Night*.
- Jieying Zhang's Master's Recital (2019). Accompanied a lecture-style recital given in fulfillment of her music education degree.

- Freshman Showcase (2019). Performed in Joshua Gregg Fried's *where the sidewalk ends* and Matthew Zwiebel's *SEA* (on violin).
- Pierre Vallet's Masterclass (2019). Served as an alternate pianist.
- Virtual Student Composer's Concert (2020). Performed in Joshua Gregg Fried's *UNDER CONTROL* and Ian Kaneko's *The Soul has Bandaged Moments*.

EXTRACURRICULAR ACTIVITIES

Secretary, Music Director, Rehearsal Pianist – Scotch'n'Soda Theatre

Member – Sigma Alpha Iota, Alpha Mu Chapter

REFERENCES

- Robert Frankenberg, Music Director of Pittsburgh Festival Opera
rfrankenberg@pittsburghfestivalopera.org | frankentenor@gmail.com | (412) 613-5971
- Christopher Larkin, conductor (*The Light in the Piazza*)
molarkin@gmail.com | (973) 207-4192