Yu-Wen **Chen**

PhD student of Atmospheric and Oceanic Science at CU Boulder

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Education

University of Colorado Boulder — *Boulder, CO*
Phd student of Atmospheric and Oceanic Science — *Aug. 2021 - PRESENT*

National Taiwan University — *Taipei, Taiwan*
M.S. in Chemistry — *Aug. 2016 - June 2018*

National Taiwan University — *Taipei, Taiwan*
B.S. in Chemistry — *Aug. 2013 - June 2016*

- Minor in Atmospheric Science

Research Experience

Deep Learning for the Prediction of Functional Groups in Spectral Data — *University of Colorado Boulder*
Project — *Sep. 2022 - Dec. 2022*

- Developed a convolutional neural networks model that uses the IR and Mass spectra in the presence of noise as input to predict the functional groups of a compound.

Contribution of sulfur dioxide gas-phase oxidation to total sulfate — *Academia Sinica*
Supervisor: Dr. Yi-Chun Chen — *Jan. 2020 - Aug. 2021*

- Analyzed OH-oxidation reactions of trace gases in view of chemical kinetics to inspect the significance of SO_2 gas-phase oxidation to total sulfate aerosols.

Ground-level Ozone Formation and Future Trend — *Academia Sinica*
Mentor: Dr. Sourav Medya — *Aug. 2020 - Jan. 2021*

- Investigated importance of meteorological elements and trace gases concentration using supervised machine learning algorithms on O_3 predictions and compared with the CESM2-WACCM model.

Influence of Lee Vortex on pollution transportation — *Academia Sinica*
Supervisor: Dr. Yi-Chun Chen — *July 2019 - Jan. 2021*

- Cooperated with Professor Chien-Ming Wu in Department of Atmospheric Science at National Taiwan University.
- Simulated distribution of pollutant under different scenarios using ultrahigh resolution model and analyzed result.

Impact of oxidation on vertical transportation of trace gases — *Academia Sinica*
Supervisor: Dr. Yi-Chun Chen — *Mar. 2019 - Dec. 2019*

- Analyzed aircraft-based observation data and compared them with ground measurements and model results to investigated oxidation of pollutants.

Quantitation of glucose using cuprous oxide/silver nanoparticles probe — *National Taiwan University*
Advisor: Dr. Huan-Tsung Chang — *Sept. 2016 - June 2018*

- Used in situ growth of Cu_2O/Ag nanoparticles under complex metrix condition to quantify blood glucose.
- Designed a smartphone-controlled portable device to monitor the concentration of Cu_2O/Ag nanoparticles.

Removing mercury ions with modified iron oxide nanoparticles — *National Taiwan University*
Advisor: Dr. Huan-Tsung Chang — *Sept. 2014 - Aug. 2015*

- Synthesized polydopamine-modified Fe3O4 nanoparticle to remove Hg^{2+} ions in polluted solution.

Publications

Published

1. **Yu-Wen Chen**, Sourav Medya, Yi-Chun Chen (2022), Investigating variable importance in ground-level ozone formation with supervised learning, Atmos. Environ., 119148.

2. Min-Ken Hsieh, **Yu-Wen Chen**, Yi-Chun Chen, Chien-Ming Wu (2022), The Roles of Local Circulation and Boundary Layer Development in Tracer Transport over Complex Topography in Central Taiwan, J. Meteorol. Soc. Japan, 100, 555-573.
3. **Yu-Wen Chen**, Arun P. Periasamy, Huan-Tsung Chang, Chien-Fu Chen (2019), Quantification of glucose via in situ growth of Cu_2O/Ag nanoparticles, Sens. Actuator B-Chem., 285, 224-231.
4. Arun P. Periasamy, Pavithra Sriram, **Yu-Wen Chen**, Chien-Wei Wu, Ta-Jen Yen, Huan-Tsung Chang (2019), Porous aluminum electrodes with 3D channels and zig-zag edges for efficient hydrogen evolution, Chem. Commun., 55, 5447-5450.
5. Rini Ravindranath, Arun P. Periasamy, Prathik Roy, **Yu-Wen Chen**, Huan-Tsung Chang (2018), Smart app-based on-field colorimetric quantification of mercury via analyte-induced enhancement of the photocatalytic activity of TiO_2-Au nanospheres. Anal Bioanal Chem. 2018, 410, 4555-4564.
6. Rini Ravindranath, Prathik Roy, Arun P. Periasamy, **Yu-Wen Chen**, Chi-Te Liang, Huan-Tsung Chang (2017), Fe_2O_3/Al_2O_3 microboxes for efficient removal of heavy metal ions, New J. Chem., 41, 7751-7757.

Presentation

** presenting author*

Oral Presentations

1. **Yu-Wen Chen***, Sebastian Schmidt, Steven T. Massie, and Susan S. Kulawik. July 2022. Satellite 3D Radiance Simulator for the OCO-2 Mission and its Application to the Mitigation of Spectroscopy Retrieval Biases in the Vicinity of Clouds. International Radiation Symposium 2022, Thessaloniki, Greece.
2. Min-Ken Hsieh*, **Yu-Wen Chen**, Yi-Chun Chen, and Chien-Ming Wu. Aug. 2021. Applying idealized simulation to evaluate the effects of the leeside vortex and the diurnal PBL development on the pollutant transport in central Taiwan. 18th Asian Chemical Congress, virtual.
3. **Yu-Wen Chen***, Sourav Medya, and Yi-Chun Chen. May 2021. Investigating Ground-level Ozone Formation: A Case Study in Taiwan. AI: Modeling Oceans and Climate Change (AIMOCC 2021) Workshop at ICLR 2021, virtual.
4. **Yu-Wen Chen***, Arun P. Periasamy, and Huan-Tsung Chang. May 2018. Quantitation of glucose through its manipulation of the growth of Cu_2O/Ag nanoparticles. Analytical Chemistry Technology Conference, Keelung, Taiwan.

Poster Presentations

1. **Yu-Wen Chen***, Sebastian Schmidt, Steven T. Massie, and Susan S. Kulawik. Oct. 2022. Mitigation of OCO-2 Spectroscopy Retrieval Biases in the Vicinity of Clouds. OCO-2/3 Science Team Meeting-Oct 2022, Boulder, CO, US.
2. **Yu-Wen Chen***, Yi-Chun Chen, Charles C.-K. Chou, Lisa Eirenschmalz, Hans Schlager, Helmut Ziereis, Katharina Kaiser, Stephan Borrmann, Johannes Schneider, John P. Burrows, and Pao-Kuan Wang. Dec. 2018. Intercomparison of aircraft and ground based measurements of pollutants and aerosols near major pollution sources over Taiwan. 18th Asian Chemical Congress, Taipei, Taiwan.
3. **Yu-Wen Chen***, Arun P. Periasamy, and Huan-Tsung Chang. June 2018. Quantitation of Glucose through its Manipulation of the growth of Cu_2O/Ag Nanoparticles. Graduate Student Poster Session of Department of Chemistry at National Taiwan University, Taipei, Taiwan.

Teaching Experience

Weather and the Atmosphere — *University of Colorado Boulder*

Teaching assistant — *Fall 2021*

- Assisted in general affairs for 350 undergraduate students
- Led weekly lecture review and exam study guide

High School Student Research — *National Taiwan University*
Research Instructor — *Sept. 2016 - July 2018*
- Instructed three high school students on fuel cell research to receive Advanced Honor in Young Scientists Development Program

Analytical Chemistry Lecture — *National Taiwan University*
Teaching assistant — *Spring 2017*
- Assisted in general affairs for 160 undergraduate students
- Led weekly lecture review and discussion for study groups

Analytical Chemistry Lab — *National Taiwan University*
Teaching assistant — *Fall 2016, Spring 2017*
- Led weekly experiment review and guided laboratory experiments

Honors & Awards

2018	**Best Popularity Award of Poster**, Graduate Student Poster	*Taipei, Taiwan*
2017	**Teaching Excellence Award**, National Taiwan University	*Taipei, Taiwan*
2013	**Academic Excellence Award**, National Taiwan Normal Univiersity	*Taipei, Taiwan*

Skills

Programming	proficient with Python (Data analysis, Machine learning, Django), FORTRAN, NCL, HTML and Unix environment; familiar with WRF-Chem and LaTEX
Cloud Service	AWS Certified Cloud Practitioner
Languages	English (fluent), Mandarin (native)
Lab	Mass spectrometry, Electron microscopy, Electrochemical work station, Atom absorption and emission spectroscopy, Arduino

Work Experience

Research Center of Environmental Changes, Academia Sinica — *Taipei, Taiwan*
Research Assistant — *Jan. 2019 - July. 2021*
- Conducted and assisted four cooperation research projects; drafted reports

ASDJ Laboratory — *Kaohsiung, Taiwan*
Web Engineer — *July 2020 - July 2021*
- Designed and setup websites
- Developed climate change related courses

Blockore — *Taipei, Taiwan*
Project Manager — *Jan. 2019 - Feb. 2020*
- Won NTU GARAGE start-up funding program (20,000 USD value); built up business model.
- Built up business model.

Military Service — *Yilan, Taiwan*
Army Private — *Aug. 2018 - Dec. 2018*
- Improved logistics supplying efficiency in military exercises.

Extracurricular Activity

Taiwan Youth Climate Coalition — *Taiwan*
Volunteer — *Feb. 2018 - Nov. 2019*
- Conducted research on climate adaptation policies and advised Taiwan government on CO2 reduction policy.

National Taiwan University Wind Band — *Taipei, Taiwan*
President, Flute and Piccolo Player — *Sep. 2012 - Apr. 2015*
- Organized two charity concerts in Taipei and one joint concert with Hsinchu Symphonic Band
- Led band winning 1st place in annual national ensemble performance.