# WEIQUAN LUO

Pittsburgh, PA | (845) 729-1221 | weiquan.luo1221@gmail.com

linkedin.com/in/weiquanluo | weiquanluo.github.io

## EDUCATION

| **Master of Science** | Iowa State University, Ames, IA, US |
|---|---|
| Major: Agricultural and Biosystems Engineering, Minor: Statistics, GPA: 3.65/4.0 | Jan 2018 - May 2021 |
| **Bachelor of Science** | Iowa State University, Ames, IA, US |
| Major: Biological Systems Engineering, GPA: 3.66/4.0 | Aug 2013 - Dec 2017 |

## KEY SKILLS & CERTIFICATE

**Research Area**:
 Statistical method,
 Experimental design,
 Optimization, Machine learning,
 Image registration,

**Certificate:**
 Tableau Specialist Certificate
 Google Project Management Certificate
**Software:**
 Python, R, Excel, MATLAB, Tableau, SQL

## PROFESSIONAL EXPERIENCE

**Data Analyst**      Sept 2022 - Current, *Positron Emission Tomography (PET) Research Center*
- Sampled PiB SUVR by processing human brain MR and PET data to support Alzheimer's disease measurement.
- Surveyed on image **registrations techniques**, **template generation methods**, and **harmonization problem**.
- Compared three template generation methods in spatially normalizing 138 Down Syndrome MR scan and generating cohort-specific MR template with **structural similarity index** and **normalized mutual information**.
- Automating PET-only quantification by developing cohort-specific PET templates and novel registration methods.

**Business Data Analyst, Intern**      Apr - Aug 2021, *PF & XF Inc.*
- Formulated the analysis framework as a reserved toolbox to support decision making during business expansion.
- Developed a groups-based advertising strategies classified by **RFM model** and geographical-based operating strategies based on **cross-analysis** of the user's geographical distribution and price sensitivity.
- Developed short-, medium- and long-term brand planning using **Boston Matrix**.

**Graduate Research Assistant**, "Multiscale Analysis Framework"      Jun 2018 - Dec 2020, *Iowa State University*
- Designed a multiscale analysis framework consisting of **Markov random field** model and **network analysis.**
- Collected gigabytes of spatiotemporal data from multiple sources using **APIs** and **web scraping**.
- Speeded up the data processing by executing the ETL on different cores for nine specific spatiotemporal scales.
- Characterized the significant relations among natural resources using **network statistics**.

**Research Assistant**, "Meta-analysis on Swine Manure and Fertilizer"      Oct 2017 - Jun 2018, *Iowa State University*
- Conducted Meta-analysis to comparing the effect of swine manure and commercial fertilizer on crop yield, water quality, gas emissions, and soil physicochemical properties.

**Research Assistant**, "Success Strategies for At-Risk Students"      Aug 2017 - Dec 2017, *Iowa State University*
- Discovered critical variables for At-Risk Students to succeed with **ANOVA** and **random forest**.

**Teaching Assistant,** "Applied Numerical Methods"      Aug - Dec 2016, 2017, 2018, *Iowa State University*
- Mentored students on optimization theory and method using Excel **Solver** and **Goal Seek**.

## PROJECT

**Algorithm and architecture in recommendation system**      Jan 2021 - Present
- Familiar with the data flow diagram of industrial-grade recommendation system architecture.
- Tested **collaborative filtering** models for personalized and diversified recommendations, such as matching **with matrix factorization** and **DSSM**, and ranking with **XGBoost+LR**, **factorization machines**, and **wide&deep** on the MovieLens dataset.

**Bird song classification with multiclass deep learning**      Oct 2020 - Dec 2020
- Developed a classification model using short-time Fourier transform, **data augmentation**, and **residual network**.
- Classified audio data into 265 species under memory limitation with small batch **data-feeding** method.
- Improved the convergence speed and prediction accuracy by locating positive samples based on intensity threshold.