

Petar Antovski

antovski@usc.edu | <https://www.linkedin.com/in/petar-antovski/> | +1 310-740-0877 | Los Angeles, CA 90035

EDUCATION

University of California Los Angeles Bachelor of Science, Bioengineering

June 2018

- *Summa Cum Laude*
- Honors and awards: Dean's Honors List, Doshi Family Scholarship

Master of Science, Bioengineering

June 2020

- Honors and awards: Dean's Scholar Award

CERTIFICATIONS

- IBM Data Science Professional Certificate
- IBM Applied Data Science Specialization
- IBM Data Science Fundamentals with Python and SQL Specialization
- IBM Introduction to Data Science Specialization
- IBM Data Analyst Professional Certificate
- IBM Data Analysis and Visualization Foundations Specialization
- ServiceNow Certified System Administrator

SKILLS

- Languages: Python, SQL, Javascript, HTML, CSS, R, C++
- Frameworks: Dash, React.js, Bootstrap
- Libraries: Pandas, NumPy, SciPy, Matplotlib, Seaborn, Scikit-learn, Scanpy, GSEAPy
- Tools: Excel, SPSS, IBM Cognos, MySQL, Git, Github, Atom, Visual Studio, ServiceNow, PowerPoint
- Professional: Leadership, Teamwork, Public Speaking, Presenting, Scientific Writing

PROJECTS

Credit Card Fraud Detection Using Machine and Deep Learning

November 2022

- Trained, optimized, and evaluated multiple classification models to predict credit card fraud.
- The 3 best models were stacked to create the best model with an accuracy of 0.999440.

Forecasting Rain Using Machine and Deep Learning

November 2022

- Used nested cross validation to train, optimize using feature selection and hyperparameter tuning, and along with learning curves evaluate 12 different classification models to determine the best model for rain forecast.
- Combining the 3 best models using model stacking yielded the best model with an accuracy of 0.851067.

Simple Calculator React App

September 2022

- Designed and built a simple calculator app focusing on React.js fundamentals.

Beauty Salon Home Page

August 2022

- Designed a home page for a beauty salon using HTML and CSS.
- CSS pseudo classes and the transform and transition properties were used to add interactivity to the webpage.

HSPC Circadian Rhythm Gene Expression Variation

June 2022

- Used Python to preprocess HSPC single cell RNA seq data with Multiple Nearest Neighbor batch correction, visualize the data using tSNE and UMAP, and perform differential gene expression analysis.
- Identified relevant pathway gene expression variation due to the circadian rhythm through GO analysis.

IL10 Expressing HSC Gene Expression Variation

December 2021

- Scanpy was used to preprocess and visualize HSPC single cell RNA seq data, without batch correction, and to perform differential gene expression analysis.
- Performed GSEA and GO analysis to identify relevant pathway gene expression variation due to IL10 expression.

All projects I have designed can be viewed at <https://github.com/petar-antovski>

PROFESSIONAL EXPERIENCE

Eli and Edythe Broad Center for Regenerative Medicine & Stem Cell Research at USC **Los Angeles, CA**

Research Assistant

January 2021 – Present

Lead two projects with a team researching how co-transplanting different hematopoietic stem and progenitor cells boosts immune recovery post chemotherapy conditioning in mice, and how the circadian rhythm affects bone marrow stem cell differentiation and blood and immune cell production.

- Formulated hypotheses and experimental plans and adjusted them based on results.
- Performed experiments including Stem cells isolation from mouse bone marrow, Flow cytometry and fluorescence-assisted cell sorting, Stem cell transplantation into mice, Weekly blood collection, Tissue collection, RNA isolation, and cDNA library generation.
- Single cell RNA sequencing data analysis, including data preprocessing, filtering, cell type annotation using transcription information, visualization, differential gene expression, gene ontology and gene set enrichment analysis using Python and R.

Valkyrie Therapeutics and Alacrity Care

Los Angeles, CA

Research Consultant

April 2020 – December 2020

Consulted on designing research projects and clinical trials concerning Cancer therapy, Skeletal muscle regenerative therapy, Antisense oligonucleotides, Cell penetrating peptides, Non-viral cell delivery, Molecular fitness tests.

- Designed laboratory research and clinical trial protocols.
- Contacted clinicians to describe company products and discuss collaboration efforts.

UCLA California NanoSystems Institute

Los Angeles, CA

Junior Development Engineer

July 2019 – December 2019

Graduate Student Researcher

September 2018 – June 2019

Lead two projects with a team researching nanoparticles and CRISPR to induce skeletal muscle regeneration, and researching exosomes derived from human stem cells for cardiac muscle regeneration following myocardial infarction; and assisted on a project using nanoparticles for chemotherapy drug capture.

- Formulated hypotheses and experimental plans and adjusted them based on results.
- Performed experiments including Nanoparticle synthesis and characterization, Cell culture, Bacterial culture, Exosome isolation and characterization, Immunocytochemistry, DNA and RNA isolation, and PCR analysis.
- Collected, cleaned, analyzed and visualized data and wrote weekly progress reports.
- Co-authored two research articles published in Advanced Functional Materials and Materials Today Chemistry.

Undergraduate Student Researcher

November 2016 – June 2018

Worked on a team of scientists researching supramolecular nanoparticles for drug and gene delivery and gene editing with CRISPR Cas9.

- Formulated hypotheses and experimental plans and adjusted them based on results.
- Performed experiments including Nanoparticle synthesis and characterization, and Cell culture.
- Collected, cleaned, analyzed and visualized data and wrote weekly progress reports.
- Co-authored two research articles published in ACS Nano and Small.

PUBLICATIONS

Materials Today Chemistry

2021

Nanoengineering cellulose for removing chemotherapy drugs from blood

Small

2021

Supramolecular Nanosubstrate-Mediated Delivery Strategy for CRISPR/Cas9 Gene Disruption and Deletion

Advanced Functional Materials

2020

Synthetic Biology and Tissue Engineering: Toward Fabrication of Complex and Smart Cellular Constructs

ACS Nano

2018

Cross-Linked Fluorescent Supramolecular Nanoparticles for Intradermal Controlled Release of Antifungal Drug—A Therapeutic Approach for Onychomycosis