

Research Topics

Physics

- Data analysing projects using satellite data (Example, finding out possible locations for geothermal power plants on Mars; proving general relativity by analysing orbit data of star systems)
- Mathematical modelling projects (Example, Navir-stokes equation)
- Measuring brightness of OLED vs LCD screens using photometer
- Analysis of an exoplanet by a DSLR mounted on a homemade tracker
- Threshold frequency of a bubble is positively correlated to the density of the surrounding fluid (using a high speed camera)
- Mapping the electromagnetic field in front of microwave oven using a Tri field meter
- Examining what causes perceived dissonance in musical intervals and effect of timbre on dissonance
- Wind resistance and automobile shapes
- The effect of bead shape and texture on the energy loss of a rotating capsule
- Investigation of bunsen-type premixed flame response to acoustic excitation: temperature and flame profile
- Redesigning an experiment to determine the coefficient of friction
- Mapping the electromagnetic field in front of a microwave oven
- On the Relationship Between Viscosity and Surface Tension
- Diamagnetic Solutions Show a Significant Reduction in Flow Rate When Exposed to a Magnetic Field Greater Than or Equal to 0.7 Tesla
- Determining the Habitable Zone Around a Star
- Calculating electric field experienced by an observer in circular motion with charge at the center of the circle based on Lienard-Wiechert's EMF theory and Newton's law of motions
- Theoretical analysis of Twin Paradox and Special Theory of Relativity
- Theoretical analysis of Special Relativity and Newtonian Mechanics beyond the Speed of Light and for Objects with Negative Mass
- The Significance and Evolution of the Stellar Initial Mass Function
- Quantifying the LEctenna: Measuring the Invisible Made Visible

Chemistry

- Role of environmental conditions on drying of paint
- Alkaloids detection in commonly found medicinal plants with Marquis reagent
- Improving measurement of reducing sugar content in carbonated drinks using fehling's reagent
- Analysis of reduction potentials to determine the most efficient metals for electrochemical cell alternatives
- Assessing and improving machine learning model predictions for polymer glass transition temperature
- Developing Magnesium air fuel cell
- Efficacy of rotten and fresh fruit extract as the photosensitive dye for dye-sensitised solar cells
- Differentiation of Waste Plastic Pyrolysis Fuels to Conventional Diesel Fuel
- Breaking the Ice: A Scientific Take on the Ice Melting Abilities of Household Salts
- The relationship between close-range shooting distance and nitrite patterns on cotton and polyester clothing
- Variation in Caffeine Concentration among Different Weight Loss Supplements Containing Green Tea and Green Coffee Extracts
- Vitamin C in fruits: Does organic make a difference?
- Effectiveness of biodegradable plastic in preventing food spoilage
- Use of drone with sodium hydroxide carriers to absorb carbon dioxide from ambient air
- Deep Sea Oil Trap: An Underwater Cleanup System for Platforms and Ships to Contain and Recapture Oil Plumes
- Evaluation of Nitrate Retention Additives for Developing Environmentally Friendly Manures
- Recovery of Copper in Effluent from Advanced Placement Chemistry Labs
- Facilitating Biodigester Biogas Production Using a Rumination Model of Bos taurus
- Characterization, Treatment, and Recovery of Chemical Species from the Bayer Process' Red Mud Waste
- A Novel Arsenic Filtration System for Low-Income Families in Rural Bangladesh

Biology

- The Effects of Antibiotics on Nutrient Digestion
- How ethanol concentration affects catalase catalysis of hydrogen peroxide
- How planarians are affected by mouth wash and cough syrup
- Can essential oils be allelopathic to *Lolium multiflorum* without harming *Solanum lycopersicum*?
- Evaluating cinnamaldehyde as an antibacterial agent in a produce wash for leafy greens
- Albuterol extends lifespan of *Caenorhabditis elegans*
- The analysis of the antimicrobial benefits of *Populus balsamifera*
- Characterizing the evolution of antibiotic resistance in commercial *Lactobacillus* strains
- The effects of different modes of vocalization and food consumption on the level of droplet transmission of bacteria
- Utilizing Algae Produced Astaxanthin to Block UVA Radiation
- Living or nonliving? Reconsider biology through the concept of viruses
- The Effects of Water Temperature on Swimming Performance
- Effects of artificial light on animals/marine organisms
- EEG study of virtual learning demonstrates worsened learning outcomes and increased mirror neuron activation
- Probiotic biosorption as a way to remove heavy metal in seawater
- Aggression of *Carcharhinus leucas* and *Carcharhinus amblyrhynchos* towards humans
- Comparative screening of dose-dependent and strain-specific antimicrobial efficacy of berberine against a representative library of broad-spectrum antibiotics
- Microbes cultured from garden soil positively impact seed germination and plant growth
- Exploring unconventional growing methods to promote healthy growth in common household plants: *Tagetes patula* L. and *Lepidium sativum*
- Can Green Tea Alleviate the Effects of Stress Related to Learning and Long-Term Memory in the Great Pond Snail (*Lymnaea stagnalis*)?
- Evaluation of microplastics in Japanese fish using visual and chemical dissections

Maths

- Similarity graph-based semi-supervised methods for multiclass data classification
- Understanding the movement of professional and high school soccer players
- Analysis of patterns in the harmonics of a string with artificially enforced nodes
- Statistically analysing the effect of various factors on the absorbency of paper towels
- A statistical comparison of the simultaneous attack/persistent pursuit theory against current methods in counterterrorism using a stochastic method
- Population forecasting by population growth models based on MATLAB simulation
- An analysis of the mathematical accuracy of perspective in paintings
- Fibonacci numbers in the number of seeds and carpels of Rosaceae and Rotaceae fruits
- A Pooling Test for Increasing COVID-19 Testing Capacity and Cost Saving
- Cryptology using Transformation Geometry & Complex Numbers
- Geometric Interpretation of Best Rational Approximation and Simple Continued Fractions
- Mathematical Analysis: How Would AI Tackle Math Olympiad Problems?

Policy

- Imperative need to consider the bioethics of CRISPR technology
- Policies to protect diminishing bee populations in the US
- Stem cell research: science and policy
- Psychosocial impact of home-based learning among students during the covid-19 pandemic in Singapore
- Access to public park, drinking fountain, and clean public drinking water in the bay area is not driven by income
- Grammatical gender and politics: a comparison of French and English in political discourse
- Money matters: significant knowledge gaps exist about basic finance
- The effect of school climate and parenting style on academic achievement
- Comparison of perception of 2020 election security threats between young and old voters
- Analysis of technology usage of teens: correlating social media, technology use, participation in sports, and popularity
- People's preference to bet on home teams even when losing is likely
- High School Students Perceptions of Full-time Online Learning
- Factors Affecting One's Willingness to Decrease Their Carbon Footprint
- A Data-Centric Analysis of "Stop and Frisk" in New York City
- Preventing All-Terrain Vehicle (ATV) Related Deaths and Injuries
- Implementation and Governance Issues in the Water-Energy Food Nexus

Cultural Studies

- Anonymity reduces generosity in high school students
- Role of race in stereotyping of a speaker's accent as native or non-native
- Young people drinking: the effect of group size on drinking habits
- Prevalence of white guilt among American high school students
- Disrupted to United: How park Chung Hee's authoritarian Rule Turned South Korea from a falling Nation to an Economic Tiger
- Women role in prehistoric Britain
- The dictatorship under Julius Caesar
- Asia during middle ages
- Role of religion in everyday life during the middle ages
- Scientific advancements in dark ages
- Evolving role of NATO for world community
- Reasons for syrian conflict
- Bridal ceremonies in ancient Rome
- An Analysis of Propaganda Based upon the Rwandan Genocide
- The Muslim Conquest of Spain
- Changes in Aromanian language use and the Aromanian ethnolinguistic group's reaction to decline
- The relationship between digit ratio and personality: 4D:5D digit ratio, sex, and the trait of conscientiousness
- Physical Appearance and Its Effect on Trust
- Sports Are Not Colorblind: The Role of Race and Segregation in NFL Positions
- The Prevalence of White Guilt Among American High School Students

Economics

- Short run equilibrium position in the economy when there is increase in unemployment
- Economic principles applied on natural processes of the body
- Importance of drawing a budget
- How money is better than barter system
- How central bank sets the base lending rate and its effects on banking system and economy
- An Overview of the Evolution of Modern Macroeconomic Theories
- Analysis of the Benefits of Applying Genetic Engineering to the Crop Industry Based on Economics and Efficiency
- The Effects of Climate Change on Soybean Production in Missouri and Its Implications on the Insurance Industry
- Emotion and Consumption Profiles in a COVID-19 Environment

Psychology

- Sex differences in confidence and memory
- Reimagize - A digital card-based role-playing game to improve adolescent girls' body image
- Can the growth mindset encourage girls to pursue male careers?
- The Perks of watching a movie: how the portrayal of anxiety and depression in film affects teenagers' perception of anxiety and depressive disorders
- Determining the effects of voice pitch on adolescent perception, subconscious bias, and marketing success using electroencephalography
- Exploring a possible link between ADHD and Inattentive blindness
- An experiment to assess the usefulness of a virtual environment as a method of Public speaking anxiety exposure
- Assessing attitude across different age groups in regard to global issues: are kids more optimistic than adults?
- The effects of knowledge, lack of knowledge, and deception on rate of perceived exertion and performance during workout
- Are teens willing to pay more for their preferred goods?
- Giving teens a voice: sources of stress for high school students
- Majority and minority influence in teenagers for different social dilemmas
- Exploring the Visionary Mind: Review of Psychometric and Neuroimaging Tests to Examine Human Creativity
- The influence of social pressure on prosocial behaviour of adolescents
- Analyzing the Relationships Between Internet Usage, Social Skill, and Anxiety Severity in Adults with Autism Spectrum Disorder
- Understanding the Relationship Between Perception and Reality Related to Public Safety: A Case Study of Public Opinion on Local Law Enforcement in Andover, MA
- Comparing Consumer Personality and Brand Personality: Do Fashion Styles Speak of Who You Are?
- The Parent-Child Relationship During the College Planning Process
- The Effect of Statement Biased Popular Media Consumption on Public Perceptions of Nuclear Power
- The Role of Corresponding Race, Gender, and Species as Incentives for Charitable Giving