



LI Science & Engineering Fair, Inc.

Promoting Excellence in Scientific Inquiry and Discovery in LI Schools

LISEF 2019 Grand Award Winners

	Award	Name	School	Title
Animal Sciences	First	Ian Carlson Bailey	Garden City High School	<i>The Cardiovascular Effects of Electronic Cigarette Components on Daphnia magna: An Investigation into Arrhythmia, Tachycardia, and Decreased Elasticity</i>
	First	Anthony Joseph D'Amore	Smithtown High School East	<i>Habitat Preference Drives Brain Shape in Crocodylomorphs</i>
	Second	Maxwell Liam DeBrino	Northport High School	<i>The Effect that Signs of Infestation of the Southern Pine Beetle Have on the Behavior of Backyard Birds</i>
	Second	Elizabeth Amanda Yaboni, Lara Kolya Suazo Cain	Smithtown High School West	<i>Modulation of Peristalsis in Nematostella vectensis by the Nervous System and Microbiome as a New Model for Gastrointestinal Diseases</i>
	Third	Seunguk John Baek	Herricks High School	<i>The Effect of Inhibiting the NMDA Receptor During Different Developmental Stages Using MK-801 on Zebrafish Larvae</i>
	Third	Jack Henry Rosencrans	North Shore High School	<i>The Effect of Location Along Long Island's Coast on Invertebrate Settlement and Presence: Developing Affordable Methods for Studying Marine Invertebrate Settlement</i>
	Third	Katie Marie Sierra	Northport High School	<i>Effects of Multiple Stressors on Survivorship and Growth in Juvenile Mytilus edulis</i>
	Third	Michelle Jia-Yi Zheng	Great Neck South High	<i>Identification of Lyme disease pathogens (Borrelia burgdorferi) Reservoir Host through DNA</i>

			School	<i>Barcoding Preparation of Ixodes scapularis</i>
	Honorable M	Luke Christopher Botta, Matthew Jacob Friedman	South Side High School	<i>Malaclemys terrapin Nest Predation: Peak to Post Nesting Season in Varied Locations</i>
	Honorable M	Matthew Condenzio	Sanford H. Calhoun High School	<i>Post Restoration Analysis of Hatches Harbor Estuary, Provincetown, MA</i>
	Honorable M	Alexa June Hickey	Smithtown High School East	<i>Different Rates of Evolution for Cerebellar Lobules Help Explain the Nature of Primate and Human Intelligence</i>
	Honorable M	Julia Marie Savino, Sidney Dorita Padmanaban, Shannon Elizabeth Alptekin	Smithtown High School West	<i>The Effect of Acetylcholine and its Inhibitors on the Rate of Peristalsis in Nematostella vectensis</i>
	Honorable M	Kyle E Schneider	Lynbrook High School	<i>Inducing Freeze Tolerance in Drosophila melanogaster Larvae by Implementing Warm Breaks and Shift Times between Constant Low Temperatures: A Potential Method for Cryopreservation</i>

	First	Jessica Michelle Goldstein	Plainview Old Bethpage JFK High School	<i>The Novel Volumetric Quantification of the Chemobrain Phenomenon within a Pediatric Population</i>
	First	Matthew Mullahy	Smithtown High School East	<i>Brain Inflammatory Responses Compromise NG2-Glial Homeostasis During Depression</i>
	Second	Lindsey Loren Rust	Roslyn High School	<i>Baseball Diamonds Are Not A Girl's Best Friend The Effect of Sport, Coach Gender, and Participant Gender on Attitudes Towards and Perceived Salaries of Coaches</i>
	Third	Juliana Marina Condoleo	Lynbrook High School	<i>Investigating the Novel Role of the Activated Cdc-42-Associated Tyrosine Kinase (ACK1) in Learning and Memory using a DACK Null Allele</i>

Behavioral and Social Sciences				<i>in Drosophila melanogaster</i>
	Third	Adrian Ke	Roslyn High School	<i>The Enticement of Embellishment: The Effect of Graph Embellishment on Comprehension, Memorability, and Perceptions of Trustworthiness</i>
	Third	Stefan Philip	Plainview Old Bethpage JFK High School	<i>Forecasting the Progression of Temporal Orientation Through the Language of Social Media Using Machine Learning</i>
	Honorable M	Lindsay Hannah Brenner	Plainview Old Bethpage JFK High School	<i>Manipulating the Levels of Guided Instruction to Enhance Intellectual Curiosity and Metacognitive Skills</i>
	Honorable M	Asher Jacob Evan Bykov	Roslyn High School	<i>Do Actions Really "Speak Louder" Than Words? The Effect of Power Posing, Gestures, and Gender on Perceptions of Competence and Likability</i>
	Honorable M	Avneet Kaur Chhabra	Syosset High School	<i>The Advancement of Human Development Through U.S. Aid</i>
	Honorable M	Sage Sherry	John L. Miller Great Neck North High School	<i>Talking with Touch: An Analysis of Neural Activation and Cross Brain Coherence During Non-Human and Human Interactions</i>
	Honorable M	Kate Weseley-Jones	North Shore High School	<i>For Pits' Sake: The Effect of Breed Labels on Perceptions of Shelter Dogs</i>
	First	Ryan Ethan Siegel	Paul D. Schreiber High School	<i>Engineering Poly (lactic-co-glycolic acid) Nanoparticles with miR-663 to Target Squamous Cell Carcinoma</i>
	Second	Julia Catherine Brandenstein	Plainview Old Bethpage JFK High School	<i>The Development of a Novel Prediction Model for Bipolar-I Disorder Utilizing Radiomic Analysis and Machine Learning</i>
	Third	Yehoshua Auerbach, Miguel	Lawrence High School	<i>Reusable Surface Molecular Imprint Biosensors Aided by Naturally Occurring Surface Roughness Indices for</i>

BioChem and Engineering		Hulyalkar		<i>Point-of-Care Diagnostics</i>
	Third	Tong Ye	Half Hollow Hills East	<i>Characterizing the Role of Nuclear Flap Endonuclease 1 (FEN1) as a Mitochondrial Long Patch Base Excision Repair Enzyme in vitro</i>
	Honorable M	Emily Chen, Minjee Kim, Eshwin Varghese	Plainview Old Bethpage JFK High School	<i>Optimizing Bacterial Cellulose Fibril Properties and Cleaning Processes Utilizing Polyvinyl Alcohol (PVA) Scaffolds and Salt Gradients</i>
	Honorable M	Somaia Saba	Sacred Heart Academy	<i>Andirobin/Resveratrol Drug Combination in Alzheimer's Disease</i>

	First	Shruthi Shekar	Jericho High School	<i>MALAT1 & SOX: Understanding Metastatic Progression Post Application of Negative Pressure Wound Therapy on Cancer Resected Wound Beds</i>
	First	Madhav Subramanian	Jericho High School	<i>ETM* is Indispensable to Endothelial Behavior During Pathological Angiogenesis</i>
	First	Matthew Ira Weltmann	Half Hollow Hills East	<i>Palbociclib Treated MDA-MB-231 Breast Cancer Cells Exhibit Increased Invasive Behavior in Zebrafish Xenograft Model</i>
	Second	Maximilian T Carson, Danielle Levanti	Eastport South Manor Junior-Senior High School	<i>Structural Determination of a New Space Group for tRNA (guanine-N1) methyltransferase from Anaplasma phagocytophilum</i>
	Second	Emma Rose Klein	Paul D. Schreiber High School	<i>The Characterization of the AR Signaling Pathway in Breast Cancer</i>
	Second	John Anthony Labbate	North Shore High School	<i>Examining the Role of Accumulating Fumarate in Diffuse Large B-cell Lymphomas</i>
	Third	Manav Bansal	The Wheatley School	<i>Developing an In Vitro Model to Study MPI Deficiency in Human Stellate Cell Activation and Underlying Mechanisms</i>
		Joshua	Syosset High	<i>Enhanced Cellular Responses of Bone-like Scaffold for Bone</i>

Biomed and Cell	Third	Maximus Lee	School	<i>Tissue Engineering Under Fluid Dynamics</i>
	Third	Pooja Shah	Lynbrook High School	<i>Analyzing the Loss of Thrombospondin-2 on Production of Extracellular Matrix Deposits in Diabetic Nephropathy</i>
	Third	Gabriella Shayani	Jericho High School	<i>FTO: Elucidating Roles in Cardiomyocyte Transcript Regulation and Angiogenic Function</i>
	Third	Michael Wang	Syosset High School	<i>Investigating the Neuroprotective Effects of Taurine and Synthetic Taurine Derivatives for the Treatment of Alzheimer's Disease</i>
	Honorable M	Mark Lenard Bodik	Ward Melville High School	<i>Morphological Changes in Pyramidal Neurons During Postnatal Development of Mouse Gustatory Cortex</i>
	Honorable M	Kevin Chen	Smithtown High School East	<i>The Regulation of DNA Base Excision Repair Endonucleases Upon Neuronal Cell Differentiation</i>
	Honorable M	Ariana Fang	Massapequa High School	<i>Reprogramming of Fibroblasts into Cancer-Associated Fibroblasts through CRISPR/Cas9</i>
	Honorable M	Aaron Lavi	North Shore Hebrew Academy High School	<i>Role of AXL Receptor Tyrosine Kinase in Resistin-Induced Effect on Epithelial to Mesenchymal Transition (EMT) in Breast Cancer</i>
	Honorable M	Dylan Makani	North Shore Hebrew Academy High School	<i>The Effects of Sera from Autoimmune Encephalitis Patients on Endothelial Cell Transcytosis at the Blood Brain Barrier</i>
	Honorable M	Jillian Emma Parker, Jiachen Lee, Arooba Ahmed	Half Hollow Hills West	<i>CCDC11 Regulates Efficient Midbody Recruitment of IST1 Suggesting Impaired Organization of ESCRT Machinery</i>
	Honorable M	Nadia Prasad	Kings Park High School	<i>Evaluating the Role of Possible Candidate KRAS Interacting Proteins Pancreatic Ductal</i>

		Adenocarcinoma (PDAC)		
Chemicals	First	Danielle Marie Kelly, Audrey Shine	Friends Academy	<i>Application of Graphene Oxide and Electrospun Poly(acrylic acid)-Platinum/Carbon Catalyst Ink to Optimize Polymer Electrolyte Membrane Fuel Cell Performance</i>
	Second	Kevin Connor Souhrada, Madison Rylee Esposito	Bay Shore High School	<i>Identification of Micrometeorites Through Synchrotron Analysis</i>
	Third	Bhawan Kaur Sandhu, Tzipora Chana Schein	Lawrence High School	<i>Creating a Novel, Cost-Effective and Durable Proton-Conducting Membrane for Hydrogen Fuel Cells</i>
	Honorable M	Saajid N/A Chowdhury, Kevin Xu	MacArthur High School	<i>Varying Graphene Oxide Deposition Mass in Proton Exchange Membrane Fuel Cells to Optimize Cell Performance and Durability</i>
	Honorable M	William Yan	Great Neck South High School	<i>Synthesis and Characterization of a Novel Dipeptide-Dendron Hybrid to Identify the Molecular Basis of Liquid Crystal Mesomorphism in Peptide Dendron Hybrids</i>
Computational Biology and Bioinformatics	First	Suchir Misra	Jericho High School	<i>Meta-Analysis of Cancer-related Gene Sets Reveals Connection between Craniosynostosis and Endometrial Cancer</i>
	Second	Ankit Jain	Herricks High School	<i>Classifying Metabolic States from Vagal Activity in BALB/C Mice</i>
	Third	Kaitlyn Petrina Hoxha	Half Hollow Hills East	<i>The Effect of Various Nucleation Mechanisms on Microtubule Aster Growth</i>
	Third	Pragati Muthukumar	Commack High School	<i>Identifying Differential Expression and Conserved Alternative Splicing(AS) Events in Zea mays</i>
	Honorable M	Sanjana Ahmed	W. Tresper Clarke High School	<i>What are the Effects of Single Nucleotide Polymorphisms on Factors of Vasculitis?</i>

	Honorable M	Amy De Lury, Joseph Bisulca	Sachem North High School	<i>Correlation between Cortical Thickness and Cognitive Impairment in Early Onset Multiple Sclerosis</i>
Computer Sciences	First	Arianna Pahlavan	Jericho High School	<i>Discretizing a Hybrid Cardiac Reconstruction: A Novel Simulation of Sustained Fibrillation</i>
	First	Sean Pak	Commack High School	<i>Receiver Noise Performance Optimization and Artificial Neural Network Based Target Localization Method for Multi-Static Passive Radar Systems</i>
	Second	David Xu	Jericho High School	<i>Dual Sensing: A Multi-modal Sensor for Pressure and Bending</i>
	Third	Zachary David Gruber	Paul D. Schreiber High School	<i>Synthesizing Stealthy Attacks on ICDs</i>
	Third	Brandon M Zhu	The Wheatley School	<i>Efficient Zero Knowledge Using Garbled Circuits in the Plain Model</i>
	Honorable M	Menachem Mendel Rabizadeh, Yonatan Khakshoor	North Shore Hebrew Academy High School	<i>The Smart Glove - Addressing Bicep And Hand Conditions Relating To Weight Lifting And Physical Therapy</i>
	Honorable M	Liam Noel Rea	Walt Whitman High School	<i>Inexpensive Online Multi-User VR Hardware and Software Environment Design Hosted Through a Microcomputer Server</i>
	Honorable M	Kushal Roy Upadhyay	Paul D. Schreiber High School	<i>An Extension of A+D Net for Rapid Shadow Detection in Video</i>
	First	Yuktha Chiguripati	W. Tresper Clarke High School	<i>Pretreatment of Brassica rapa with Pyrabactin Increases Tolerance to Drought</i>
	First	Kelsey Yan Ge	Ward Melville High School	<i>Multidecadal Trends in Tropical Cyclone Behavior within Tropical North Atlantic Sub-basins</i>
	Second	Emma Lilly Levin	Paul D. Schreiber	<i>Identifying United States Hurricane Risk With Changing</i>

Earth and Environmental Sciences			High School	<i>Climate</i>
	Second	Makaeel Shahjehan Sheikh, Eshan Shakrani	W. Tresper Clarke High School	<i>Analysis of the Detoxification of 5-Chloro-2-(2,4-dichlorophenoxy) phenol through Peroxidase-Mediated Reactions</i>
	Third	Kathy Cao	Commack High School	<i>The Development of a Machine Learning Model to Predict Tropical Cyclone Genesis from Mesoscale Convective Systems</i>
	Third	Anthony Joshua Coelho	Brentwood High School	<i>An Investigation of Harmful Algal Blooms: From Beta-Methylamino-L-alanine (BMAA) in Green Algae to Brevetoxins in Red Algae</i>
	Third	Kyra McCreery	North Shore High School	<i>Assessing Regional North Atlantic Hurricane Landfall Frequencies Through Poisson Regression Modeling and Probability Simulations</i>
	Third	Brian Joel Torres, Danny Patrick Neri III	Brentwood High School	<i>Fight Club: Investigations of Aggressive Interactions Between the Native Crabs <i>Uca pugilator</i> and <i>Uca pugnax</i> and the Invasive Crab <i>Hemigrapsus sanguineus</i> in a Long Island Salt Marsh: A Study of the Impact of an Invasive Species on an Ecosystem</i>
	Honorable M	Dylan Maxwell D'Agate	Half Hollow Hills East	<i>Vinegar to the Rescue: Presoaking Maize Seeds in a Vinegar Solution Improves Germination and Drought Tolerance</i>
	Honorable M	Julia Beth Grossman	George W. Hewlett High School	<i>Use of Fluorine as a Proxy to Determine the Effect of Geothermal Fluids on Strain Rate, Effective Crustal Viscosity and Landscape Evolution in the Great Basin</i>
	Honorable M	Ethan Jacob Sontarp	Commack High School	<i>U-Pb Geochronology of Fossilized Horse Teeth from the Barstow Formation, California</i>
	Honorable M	Alexander Maxwell Urmaza	Sayville High School	<i>Effects of Roundup™ on the Respiration of <i>E. fetida</i></i>
Honorable		Smithtown	<i>Power Plants: Modeling how Plant Sediment Oxidation</i>	

	M	Calvin Wong	High School West	<i>Influences Denitrification in Salt Marshes</i>
Environmental Engineering	First	Serena Zhao, Samantha Chen	Manhasset High School	<i>Optimizing the Removal of Methylene Blue from Contaminated Water Using Pumpkin Rind Waste and an Analysis of Desorption Efficiency and Material Reusability</i>
	Second	Meleni Maria Sarantos	Smithtown High School East	<i>An Investigation into the Identity of NirS and NirK Microbes in Nitrogen-Removing Biofilters from Sequencing Data</i>
	Third	Alexis Lauren McCauley-Pearl	Smithtown High School East	<i>Lead Ion Remediation of Contaminated Water Using Biomass</i>
	Third	Katherine Zhang	Jericho High School	<i>Superabsorbent Polymers to Reduce Leachate Migration</i>
	Honorable M	Sera D Eviner	Oceanside High School	<i>Niobium Pentoxide as a Promoter for Vanadium Pentoxide in the Oxidation of Carbon Monoxide</i>
	Honorable M	Avinash Kumar Reddy, Chapin Luke Zerner, Kyle Patrick Dunn	The Wheatley School	<i>The Effect of Increased Salinities and Introduction of Phytotoxic Pesticides Roundup and Spectracide Triazicide on the Health and Phytoremediation of Lemna minor L.</i>
Material and Mechanics	First	Jeffrey Y Yu	Roslyn High School	<i>Designing a Universal Liquid 3-Dimensional Printer</i>
	Second	Elizabeth Jocelyn Grace Orlando	Ward Melville High School	<i>Environmentally Benign Low Temperature Degradation of Muslin Cloth</i>
	Third	Sean G Liner	Plainview Old Bethpage JFK High School	<i>The Effect of Geometry on the Wetting Properties in the Cassie-Baxter State</i>
	Third	Justin Daniel Schiavo	Roslyn High School	<i>The Effect of the Aerospike Nozzle on the Hybrid Rocket Engine</i>
	Honorable M	Thomas Eric Coor	Oyster Bay High School	<i>Analysis of Reed Blade Shapes on Relative Decibel Levels of Overtones</i>

	Honorable M	Jay Nagpal	Half Hollow Hills East	<i>Mitigation of Swelling and Application of Filler-improved Biopolymers in Stabilized Soils</i>
	Honorable M	Ruben Prawer, Ari Ostrow, Adriel Kohananoo	North Shore Hebrew Academy High School	<i>The Robotic De-Icer</i>
Mathematics	First	Jared Steven Bank	Half Hollow Hills East	<i>An Analysis of Boundary Growth Rates in One-Dimensional Cellular Automata</i>
	Second	Rinni Bhansali	Half Hollow Hills East	<i>A Trust Model in Bootstrap Percolation</i>
	Third	Joseph Melkonian	Paul D. Schreiber High School	<i>Modifying the T-value to Better Approximate Player Value in Cooperative Games</i>
	Honorable M	Soham Maiti	Bethpage High School	<i>Derivation and Applications of Lorentz's Transform and Association with Einstein's $E=mc^2$</i>
	Honorable M	Rithika Narayan	Elwood High School	<i>Orphaned by Laplace: A Tale of Two Cysts</i>
Microbiology	First	Poojan Pandya, Leo Takemaru	Half Hollow Hills West	<i>Investigating the Role of the Novel ESCRT-III Recruiter CCDC11 in HIV Viral Budding: Identifying a Potential Target for Antiviral Therapy</i>
	Second	Michael Lawes	Elmont Memorial High School	<i>Metal and Hyperglycemia-Induced Neurotoxicity in a Caenorhabditis elegans RAGE Model</i>
	Third	Samuel Benjamin Bogdanov	George W. Hewlett High School	<i>Elucidating the Molecular Mechanism of Clostridium perfringens Epsilon Toxin (ETX) Cytotoxicity and the Requirement for the Myelin and Lymphocyte Protein MAL</i>
	Honorable M	Jennifer Wang	Great Neck South High School	<i>Localization of Proteins in Mycobacteria Using Compartment-Specific Labeling</i>
	Honorable M	Yu Zhu	Central Islip Senior High School	<i>The Effects of Simulated Microgravity on the Production of Biofilm</i>

Physics and Energy	First	Kaylie Sage Hausknecht	Lynbrook High School	<i>Disentangling Spatial Correlations from Inhomogeneous Materials with Shift-Invariant Artificial Neural Networks</i>
	Second	Baokun Gu	Manhasset High School	<i>Searching for Burst Gravitational Waves and Characterizing LIGO Detector Noise</i>
	Third	William L Cai	Great Neck South High School	<i>Implications for the Detection of the Chiral Magnetic Effect Through Charge Separation Measurements in d+Au and Au+Au Collisions at the Relativistic Heavy Ion Collider</i>
	Honorable M	Qingyuan Qian	John L. Miller Great Neck North High School	<i>The M-sigma Relation of Intermediate-Mass Black Holes in Dwarf Galaxies</i>
	Honorable M	Yasemin Ipek Sahin, Samuel Kim	Commack High School	<i>Steering Magnet Research and Development for use in an Electron-Ion Collider</i>
Translational Medical Science	First	Caroline Yu	Jericho High School	<i>Hexokinase Domain Containing 1 (Hkdc1): A Metabolic Regulator of Nonalcoholic Fatty Liver Disease (NAFLD)</i>
	Second	Audrey Zhong	Jericho High School	<i>Temporal Progression of Secondary Degeneration in Mice Substantia Nigra After Chronic Stroke</i>
	Third	Anne Hwang	Valley Stream South High School	<i>Circulating Biomarker Levels are Diagnostic of Hepatocellular Carcinoma in a Murine Model of Non-Alcoholic Steatohepatitis</i>
	Third	Eish Maheshwari	Herricks High School	<i>Design of a Red Blood Cell-Based Drug-Delivery Platform for Improving Curcumin Pharmacokinetics and Bioavailability via Reengineered Silica Nanoparticles</i>
	Honorable M	Matan Atlas	North Shore Hebrew Academy High School	<i>Morphological Evaluation of Skeletal Defects in Mice with Diamond Blackfan Anemia</i>
				Bellmore



**Honorable
M**

**Lauren
Gabrielle
Rakhimov**

John F.
Kennedy
High School

*Modulations of TOR Signaling
can Enhance Resistance to
Infection in Drosophila
melanogaster*