

**NCIFT**

NORTHERN CALIFORNIA INSTITUTE OF FOOD TECHNOLOGISTS



# The Hornblower



Members gathered for the annual Holiday Dinner at Callippe Preserve on December 10. For more photos from the event, see page 8.

## Meet Your 2025-2026 NCIFT Officers

### PRESIDENT

**Jagriti Sharma, PhD**

Jagriti Sharma has a PhD in Food Science and Technology from the



Sharma

market-leading “better-for-you” products in retail, food service, and startup environment. Her experience spans from hardcore ingredient innovation to leading cross functional teams in novel protein space. Recognized for her leadership, Jagriti has steered an award-winning R&D team. In her current position as

SVP, Product, she is committed to harmonizing scientific excellence with business pragmatism to drive strategic objectives.

Jagriti's superpower lies in cultivating thriving communities. She is passionate about bringing the food community together through NCIFT in her role as President of the section.

### PRESIDENT-ELECT

**Jaime Lynn Lawrence**



Lawrence

Jaime has been proudly serving the NCIFT since 2021 when she started as the Executive Editor of the Hornblower. With a robust background in R&D and Marketing,

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## UC Davis FTC Update

by Bianca Mojica, Class of 2027  
Food Science

This fall, the Food Tech Club at UC Davis had a blast with various events and meetings at which members could get involved. New members were welcomed with open arms, participating in demonstrations, tours, competitions, and more, helping to strengthen the bonds between these future food scientists! Here's what the Food Tech Club has been up to this quarter:

### INVOLVEMENT FAIR

At UC Davis's annual Involvement Fair, members of the Food Tech Club had the opportunity to present their plans and past accomplishments. Many prospective members came up to the Food Tech Club's table to learn about food science and the Food Tech Club's activities and events. The fair was considered a great success due to the high amount of interest shown.

### FALL WELCOME & INTRODUCTION TO FOOD TECH CLUB

After the success of last year's Food Tech Club Fall Welcome, the event was held once again at the very beginning of the fall quarter to introduce members, new and old, to the club's board and to allow everyone to meet new people. Co-Activities Chairs Alex Laitipaya and Gary Wang planned a scavenger hunt, where attendees were split into groups and

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## Current Officers of NCIFT

### PRESIDENT

Jagriti Sharma, PhD

### PRESIDENT-ELECT

Jaime Lawrence  
Tastepoint by IFF

### IMMEDIATE PAST PRESIDENT

Dr. Vivian Wu

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Dr. Gabriela John Swamy  
SJSU

### TREASURER

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Premier Nutrition Company

### MEMBERSHIP SECRETARY

Erin Evers  
SPI Group

## Directors-at-Large

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Shayanti Minj

Karen Dawes

Marika Lodle

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### NOMINATING & ELECTIONS

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Parastoo Yaghmaee

### SUPPLIERS' NIGHT EXPO CHAIR

Karen Dawes  
George Chiala Farms, Inc.

### SUPPLIERS' NIGHT

SYMPOSIUM CHAIR  
Jaime Reeves  
Mattson

### GRANTS COMMITTEE CHAIR

Charlwit Kulchaiyawat

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Erin Evers  
SPI Group

### VOLUNTEER COMMITTEE CHAIR

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Premier Nutrition Company

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Christina Greene

SOCIAL MEDIA CHAIR  
Demini Rajapaksha

EDUCATIONAL CHAIR  
Dr. Ashwini Wagh  
Clorox

STUDENT POSTER COMPETITION CHAIR  
Parastoo Yaghmaee

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Daniel Andrews  
Elite Spice Inc

GOLF TOURNAMENT CO-CHAIRS  
Jaspreet Walia (Jas)  
Aemtek

Daniel Andrews

DEIB AMBASSADOR  
Ari Kenney

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UNIVERSITY LIAISON  
Dr. Vivian Wu  
USDA

### UC DAVIS:

Summer Plepalakon  
Undergrad Student

Jonah Messinger  
Undergrad Student

GRADUATE STUDENT  
REPRESENTATIVES

Yu Wang  
Natalia Ribeiro

CAMPUS CONTACT  
Stephanie Myers

### CSU CHICO:

Campus Contact  
Dr. Maria Giovanni

### CSU SAN JOSE:

Campus Contact  
Dr. Xi (Alex) Feng

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NCIFT OFFICE  
Imelda Vasquez  
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Check out our website:  
**www.ncift.org**



# The Hornblower

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## NCIFT New Professionals Event – Ollie's American Cheese & Provisions

by Erin Evers

Everyone had a big smile on their face and enjoyed the cheese tastings at the NCIFT New Professionals event in October! Ollie's American Cheese and Provisions hosted the group as we learned about cheese and Ollie's small Oakland shop. Most of us purchased some items to take home to share with friends and family.

We were thrilled to welcome NCIFT new Professionals at this Oakland location, with members coming from Modesto, Stockton, Sacramento, San Jose, and beyond. We invite all recent food science graduates and professionals with less than 10 years experience to our next event! If you attend, you may possibly:

- Connect with your former food science classmates
- Connect with former co-workers
- Meet a recent food science graduate who has relocated to Northern California section
- Learn and connect with local businesses



## Welcome New Members

Sandra De Lara	Tom McGowan
Kristin Iverson	Tuan Nguyen
Fareeya Kulapichitr	Manmit Shrimali
Padma Kulkarni	

## Welcome New Student Members

Jessica Abogado	Aijia Liu
Gavrien Anglo	Alexander Talamonti
Elana Bender	Kyleigh Tibbets
Simon Glaza	



## President's Message

by Jagriti Sharma, PhD

I am both humbled and energized to serve as President of NCIFT. Together, we continue to build upon a strong sense of community that began more than 70 years ago.

NCIFT remains committed to providing a forum for passionate food science professionals and technologists to collaborate, learn, and contribute. Through these shared efforts, we transform collective scientific knowledge into innovative solutions that benefit our community. The engagement and enthusiasm seen at our events recently reflect the strength and commitment of our membership.

Jagriti Sharma

Looking ahead, NCIFT will continue to expand opportunities for professional development, mentorship, and industry engagement. By supporting emerging professionals and embracing new ideas, we ensure our section remains relevant, dynamic, and impactful.

Thank you to our executive committee, volunteers, and members for your continued support and dedication. Together, we will continue to build a strong, inclusive, and forward-looking community. I look forward to a productive and inspiring year ahead - with all of you.

Warmest regards,

Jagriti Sharma, PhD

NCIFT President for 2025-2026



## From the Executive Editor

by Jaime Lawrence

As we approach the holiday season, I would like to extend my absolute gratitude to all of the members of the NCIFT, especially the officers and volunteers. I am incredibly proud of what we are accomplishing alongside the collaboration and energy that I see in all of our events. As our community continues to grow and evolve, this newsletter remains a place to share ideas, highlight achievements, and stay connected to the people and work that make NCIFT strong.

In these pages, you'll find updates on our new officers

Jaime Lawrence

for 2025, recent activities, member highlights, and insights into what's ahead. Whether you're deeply involved or just getting started, we hope the Hornblower keeps you informed, inspired and engaged.

Thank you to everyone who contributes their time, expertise, and enthusiasm to NCIFT. Your involvement is what makes this organization - and this newsletter - possible.

Very respectfully,

Jaime Lynn Lawrence

Executive Editor, NCIFT Hornblower

President – Elect, NCIFT

## Meet Your 2025-2026 NCIFT Officers

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she is now a Technical Account Manager for Tastepoint by IFF. She is passionate about the Food Industry and frequently speaks at universities across the U.S. about flavors and her experiences. She loves connecting with students and mentoring them as they enter industry. Jaime also serves as a board member on the American Association of Candy Technologists and the Oregon Dairy Industry.



**MEMBERSHIP SECRETARY/  
NEW PROFESSIONALS GROUP CHAIR**  
**Erin Evers, SPI Group**

Erin Evers, CFS, is a Technical Sales Manager at SPI Group and longtime NCIFT volunteer. She founded the NCIFT New Professionals group in 2012 and

Evers

continues in her efforts to help early-career members connect and grow in the food science community. You will probably see her at the next NCIFT Event!



Lodule

**DIRECTOR-AT-LARGE**  
**Marika Lodule**

Marika is a food scientist specializing in product development work for the past decade. Food is her passion and during the last 3 years she has leaned into dietary supplements and medicinal herbs with her work as an R&D Scientist at Traditional Medicinals. Marika has served on an IFT board for 7 years including Florida and Northern California sections.

# Mattson 2026 Macro Movements: Sneak Peek

by Barb Stuckey

Every year brings news, trends, and new movements that change the course of our collective behavior. Each year at Mattson we do a massive immersion into what kinds of behaviors are driving the trends, and from there, we create the food and beverage trends that illustrate how these macro movements are relevant to the food industry. Here's a sneak peek into a few of the 2026 Movements we're tracking.

## The Protein Predicament.

Hey, have you heard? People are seeking protein! And if you haven't heard, turn over and go back to sleep for the next 5 years. When you wake up, we're hoping you understand that protein is more than just the macronutrient that seems to have no downsides to food companies and consumers. But is that true? We're unpacking protein from the ground up, teaching our clients (often marketing and insights teams unschooled in nutrition) and the industry what protein synthesis means, debating whether or not recommendations for protein intake are too low or way too high. Heard of the protein leverage theory? We're unpacking that, too, and our collective history in potentially enabling the worst case scenario. Protein is, for sure, the hero ingredient that enables GLP-1 patients to retain lean muscle mass, post-menopausal women to enter old age with strength, and of course enabling the gym bros and gals. It's also the thing that turns a Pop-tart from a treat to the most important meal of the day. A majority of consumers: 61% in 2024, report actively increasing their protein intake for general health and wellness. The million dollar question is whether this will be the year protein slows or continues to flex its muscle.

## The New Grocery Shopping Experience

Love the thrill of the hunt at Costco? You're not alone. Legacy grocers are struggling to keep up with the phenomenon we're seeing on social media from Trader Joe's tote bags that are must-have accessories to Grocery Outlet's treasures at half the price, and the immersive experiences that grab the attention of Gen Z and Millennials. Grocers are now lifestyle brands with devoted fanbases, viral TikTok accounts, and weekend crowds that rival entertainment venues. Younger consumers are increasingly choosing them as primary destinations, drawn by discovery, community, and fun that traditional supermarkets can't match. Their appeal lies in what these stores withhold as much as what they offer. Limited assortments remove the paradox of choice, while rotating stock and private label exclusives create scarcity. What started with Millennials and Gen Z is spreading fast. Grocery runs have become social events: Costco singles mixers, Trader Joe's date nights. These and foreign brands like Aldi and H-mart capture market share and cultural cache. They're proving the future of grocery isn't about having everything. It's about making what you have feel special, worth talking about, and... worth the trip.

## Vice Is Back

After years of restraint, consumers are reclaiming pleasure. Beef, tallow, premium spirits, indulgent desserts, nicotine, Diet Coke, and even gas-powered cars are resurging, not as rebellion, but as comfort. Today's vice is curated and intentional: small luxuries, nostalgic brands, and indulgences that feel earned. From maximalist flavors to "luxury lighter" culture, Americans are rewriting the rules of enjoyment. For brands, the message is clear: joy itself is a value worth selling.

## Are You Worried About Chemical Hazards?

by Richard F. Stier

A few weeks ago, I walked into my bank, stopped and walked back to the door to read the new announcement: a Prop 65 warning that read as follows:

### PROPOSITION 65 WARNING

### WARNING

Entering this building can expose you to chemicals known to the State of California to cause cancer or birth defects or other reproductive harm, including formaldehyde from carpets and building materials, and lead in brass, vinyl cords and coverings, as these substances are commonly found in commercial and residential settings. For more information about these substances and proposition 65 generally, please visit [www.P65warnings.ca.gov](http://www.P65warnings.ca.gov)

After reading the warning, I went into the bank and asked the manager "Why the Prop 65 warning?" The response was "I do not know. It came from Corporate with the instructions to post it at every door."

This incident made me wonder how common the Prop 65 warning signs are. They are everywhere; markets, hardware store, pharmacy, gas station, stationary store, everywhere. And, because they are everywhere one wonders if people really acknowledge them or have so much exposure to such warnings bred indifference in the average citizen? Are we crying "WOLF?"

Proposition 65 or The Safe Drinking Water and Toxic Enforcement Act of 1986 was passed by the voters of California in 1986 and became law on January 1, 1987, so it is almost 40 years since it became law. It was enacted to protect human health from cancer and birth defects.

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# UC Davis Food Tech Club Fall Quarter Review

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given clues to find various locations around the Robert Mondavi Institute, a fun yet formidable challenge for all involved! Members were able to get acclimated to the club's environment and with food science students as a whole.

## GUEST SPEAKERS

President Jonah Messinger and Vice President Ethan Truong invited five guest speakers from various companies/organizations to share their career insights and experiences with Food Tech Club members:

- Jaime Lawrence, the Commercial Manager at Tastepoint by IFF, talked about Tastepoint's flavor-making capacities and their current products, as well as how marketing develops the insights for new flavors to create.
- Chris Gentry, the Director of Corporate Purchasing at Reser's Fine Foods, shared his experiences working in purchasing, and talked about the different products sold at Reser's and their corporate practices regarding logistics, environmental, geopolitical, business environment, and more.
- Eli Cruz Rodriguez, the Assistant Community Program Manager at 18 Reasons, told meeting attendees about his company: a non-profit community cooking school, focused on increasing food security through the power of home cooking with the hopes of empowering the community with the creativity and confidence to buy, cook, and eat good food every day.
- Toni de Senna, the Principal Aseptic Scientist at SunOpta, described her career path and talked about SunOpta's products (plant-based beverages, nutritional beverages, tea, broth, and better-for-you snacks) and processing facilities, as well as her role supporting the company with her knowledge of microbiology and food safety/quality.
- Amanda Mrad, a World Food Forum Intern at the United Nations Food and Agriculture Organization, explained how the World Food Forum can support students with their food science and innovation passions, taking advantage of various competitions and challenges and educational programs, all leading towards a flagship event in October in Europe.

## MENTOR/MENTEE PROGRAM

Vice President Ethan Truong kickstarted the club's Mentor/Mentee Program, a continuing tradition from the past two years of the Food Tech Club. The overall goal of this program is to help new students get familiarized with UC Davis, the Food Tech Club, and food science as a whole by connecting them with older students. After gathering sign-ups from food science students, mentors and mentees were paired and encouraged to

meet regularly through the quarter's "Mentorship Quest," where hang-outs such as working out together, getting coffee together, cooking together, and more were ranked on a point system. The mentor/mentee pair (or group) who racked up the most points by the end of the quarter was given a gift card to the restaurant of their choosing! In addition to the quest, a picnic was hosted in Central Park (in Downtown Davis) for participants to explore the Davis Farmers' Market and get to know each other in a fun, group setting.

## FOOD DEMOS/COMPETITIONS

Product Development Chair Glacie Wang hosted two events during this quarter.

- **Spam Rice Balls Food Demo:** In collaboration with the UC Davis E-Sports Club, members from both groups came to the Food Innovation Lab and were provided ingredients and instructions to make spam rice balls.
- **Olive Oil Competition:** Glacie hosted a multi-week Olive Oil Competition, working with the California Olive Ranch for olive oil products. The premise of the competition was to make a Thanksgiving dish using olive oil as the main fat source, and teams got together over practice sessions before the actual competition took place in the Food Innovation Lab. There were four total teams competing, making dishes such as vegan cornbread with olive stuffing, crispy smashed potatoes with herb dipping sauce, bacon caramel sweet potato hand pies, salted caramel pumpkin pie eclairs, and a sweet potato/apple pie hybrid.

## INDUSTRY TOURS

- **California Olive Ranch:** External Relations Chair Herry Huang hosted an industry tour, traveling to California Olive Ranch and receiving a tour of their facility, as well as olive oil samples and company merchandise.
- **David Mills Lab Tour:** Dr. Davis Mills's lab researches the interaction between food material and human gut microbiota, and strives to improve human health via gut nourishment. This quarter, Dr. Mills's lab was the first of an upcoming series of research lab tours. These tours involved touring the labs of various UC Davis professors in food science or food science-adjacent fields to present their work to prospective researchers.

## HOLIDAY MIXER

The Food Tech Club ended off the quarter strong at FTC's annual Holiday Mixer, planned by Co-Activities Chairs Alex Laitipaya and Gary Wang. As the club's biggest event to reunite students, professors, and families alike, many delicious refreshments and holiday-themed activities were employed, such as a baking competition, music, dinner, drinks, gingerbread decorating, movies, and more!

# Are You Worried About Chemical Hazards?

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It is what is known as a “right-to-know Law,” that is, consumers are notified that there are chemicals that may cause health risk. Unfortunately, the focus is on specific chemicals not on an actual risk assessment on potential health risks\*.

Prop 65 also has unique language that actions against potential violators may be brought not only by the state Attorney General, district attorneys, and city prosecutors, but also any person or group acting in what they perceive to be the public interest. This has created what is known as the bounty hunter aspect of the Proposition. This allows anyone to pursue a case against a business and get a monetary settlement. This has led one colleague of mine to refer to Prop 65 as the “*Fair labor practices act for lobbyists, lawyers and lunatics.*”

A law to protect the public health is a good idea but it really should be based on a risk assessment, that is, does exposure to the chemical really elicit an adverse reaction. As an example, I purchased a bag of trail mix recently. When I got home, I saw the following on the back of the package:

**WARNING:** Consuming this product can expose you to chemicals including but not limited to acrylamide, Lead, and Sulfur Dioxide, which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov/food](http://www.P65Warnings.ca.gov/food)

That was a bit of a surprise to me as many people treat foods like trail mix as a healthy snack. However, it did contain dried fruit which is often sulfured and granola, which is baked grain-based material. Acrylamide forms during baking, frying and other cook steps and is a compound formed as part of browning reactions. It is one of the hundreds of chemicals listed under Prop 65 as cancer causing and has been on the list since 1990. Acrylamide stepped to the forefront after the publication of a paper by Swedish researchers in 2002 {Tareke et al., J. Agric. Food Chem. 50: 4998-5006 (2002)} that reported that cooking carbohydrate rich foods and protein rich foods contained acrylamides. They were not present in foods that were uncooked or boiled. French fries and potato chips were found to be significant sources of acrylamide. The presence of acrylamide in fried or baked foods that brown when cooked should be re-examined and subject to a risk assessment on whether these foods really pose a risk to human health. Why? There are other compounds formed during browning which are health protective (antioxidants) which may well outweigh the potential problems posed by acrylamide. There are many who believe that cancer warnings on foods are not justified especially when one goes beyond the individual

chemicals and looks at the food system itself.

Perhaps it is time to update or rethink Prop 65. The State of California should take a look at a Special Report of the American Council on Science and Health entitled “*California’s Proposition 65 and Its Impact on Public Health.*” This publication is over twenty years old but the discussions are still valid as are the recommendations for improving the law. One point that the authors make is that “*There is no evidence that Proposition 65 has been effective in reducing the incidence of mortality due to cancer or adverse reproductive effects among the citizens of California.*” The principal writer was Dr. Daland R. Juberg, but there were seventeen (17) other eminent scientists who commented and made contributions.

The document wraps up with five recommendations that should be considered to enhance the Proposition 65 or any similar initiatives. The author agrees with each of the recommendations especially since they emphasize the importance of differentiating potential hazards based on risk and the importance of a “risk-based” analysis of potential hazards. This point has already been elaborated upon. I also agree with the suggestion to eliminate the bounty element that allows private citizens to make claims, hence the “*Fair labor practices act for lobbyists, lawyers and lunatics.*”

One also wonders about the wisdom and even the legality of individual states establishing laws that affect the other forty-nine (49) states. Food processors selling their products be they at restaurants, fast food chains, or through the markets must make the public aware of potential hazards such as acrylamide in French fries. We have seen similar laws passed in other states such as mandating labeling of GMO foods. Such laws, if contemplated, should be enacted at the national level or not at all. Think about it.

Californians and the food industry in the State have had almost 40 years on Proposition 65. The time has come to re-draft this Act of the people so it better focuses on actual risk to human health instead of simply expanding the list of potentially hazardous chemicals. Based on the notices throughout there are hazardous chemicals everywhere but it appears the people of the State of California are indifferent to these hazards.

## \* References

Juberg, D., (2000), American Council on Science and Health Special Report, “*California’s Proposition 65 and Its Impact on Public Health.*” New York, NY.

Coughlin, J.R., (2013), “*Acrylamide in Foods: A Review of the Science and Future Considerations,*” “*7<sup>th</sup> International Symposium on Deep Frying*” San Francisco, California February 21, 2013

# NCIFT Holiday Dinner

at the Callippe  
Preserve in  
Pleasanton on  
December 10<sup>th</sup>, 2025



# NCIFT Holiday Dinner Recap

by Jaime Lawrence

The NCIFT Holiday Party was a tremendous success, marking our largest turnout since before the pandemic. Members and guests gathered for an evening of connection, celebration, and renewed energy. An encouraging sign of our growing and engaged community.

The event was highlighted by our two outstanding keynote speakers. Chris Gentry, Director of Purchasing – Raw Materials, Reser's Fine Foods who shared valuable

insights drawn from his extensive experience in the food industry, offering perspectives that resonated strongly with attendees. Dr. Zachary Cartwright, Principal Scientist, Aqualab followed with an engaging and thought-provoking presentation that underscored innovation and quality in today's evolving food landscape.

With record attendance, inspiring speakers, and a festive atmosphere, this year's holiday party was a memorable reminder of the strength of the NCIFT network and the excitement ahead for the coming year.

## Plantible Foods and SJSU Students Unite to Explore the Future of Plant-Based Proteins

Plantible Foods, an innovative food-tech company, collaborated with San José State University's Department of Nutrition, Food Science, and Packaging (NUFS) to provide students with experiential learning opportunities with plant based protein to develop healthy, clean label and sustainable products. The students were able to explore new applications using Plantible's flagship ingredient, Rubi Protein™. Derived from the aquatic plant Lemna, Rubi Protein contains all essential amino acids (PDCAAS 1.0) and is a highly functional, allergen-free protein that can match or exceed the performance of animal sourced proteins like eggs or milk in a variety of food products.

Dr. Gabriela Swamy connected with Plantible Foods during the IFT FIRST Annual Event & Expo in Chicago in July 2025, where discussions about sustainable protein innovation sparked the idea for this academic-industry collaboration. IFT has long played a pivotal role in bridging industry and academia, and this connection exemplifies its impact in fostering meaningful collaborations that drive food science education forward.

This collaboration is further strengthened by the leadership of Dr. Ashwini Wagle, Department Chair of NUFS, who has been instrumental in promoting experiential learning and industry engagement within the department. Under her support, the collaboration brings together Plantible Foods' cutting-edge expertise with SJSU's commitment to hands-on student learning.

The Plantible Team, including Dr. Keith Bromley, Alexandra van Alebeek, Aude Morizot-Thibault and Dr. Yadu Dar, provided excellent input and feedback throughout the project. This gave students valuable insight into real-world innovation, formulation challenges,



and industry expectations. The project engages with NUFS 103L students under Dr. Swamy's guidance. Students evaluated Rubi Protein's sensory, nutritional, and functional properties across various food systems. Student teams tested Rubi Protein in emulsified and

gelled systems as well as alternative protein products to assess its ability to enhance texture, structure, and overall product quality. The results of the evaluation showed many exciting applications including using Rubi Protein as a gelling agent in jams, a binding agent in vegan kebabs, and increasing creaminess in Mango Kulfi.



Through expert mentorship, ingredient support, and academic leadership, Plantible Foods and SJSU—supported by departmental guidance from Dr. Wagle and strengthened by IFT's role in connecting innovators—are advancing experiential learning and shaping the future of sustainable protein development through education, research, and collaboration.



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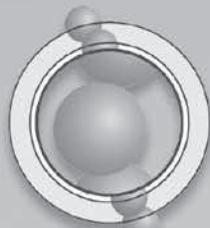
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## Utilizing Machine Learning to Identify Shelf Lives of Avocados through Phone Images

by Gavrien Anglo (Department of Nutrition, Food Science and Packaging, San Jose State University)

With 50% of all fruit produced globally estimated to be uneaten, as well as accompanying 25% land and water waste, food waste is a problem that is costing \$161 billion globally (Lee et al. 2025). Overripe avocados account for around 40% of avocados produced, and a premium market price relative to other fruits makes it even more necessary to prevent waste. Food science researchers from Oregon State and Florida State have developed a method for training AI models to check the quality of avocados from the photos of an iPhone. By utilizing deep learning, In-Hwab Lee et al. trained artificial intelligence models to identify internal quality and firmness, which is correlated with ripeness, with an accuracy of 92 and 84 percent respectively (Lee, 2025). By utilizing heatmap generations, Lee et al. can better understand some of the factors that led their models to make the decisions they made.

As part of their study, Lee et al. (2025) purchased 140 Hass avocados from local grocery stores, bought in batches 2 months apart to account for seasonal differences. Each batch was divided into 7 groups and each subsequent group of avocados was stored for different lengths of time, in order to simulate different stages of shelf life remaining. Pictures were taken of the avocados after they had been stored for their desired length of time, and then data regarding their surface color and internal pressure was measured using colorimeters and a texture analyzer, which utilizes pressure with a probe to determine firmness. By correlating these 2 factors, they then assigned relative estimations of shelf life for each avocado, using California Avocado Commission's remaining shelf-life recommendations. This data was then used to have 2 different deep learning models that predict firmness and make predictions about whether future avocados were fresh or rotten, by examining the pictures.



This research appears very promising in terms of leading to a drop in food waste and increases in food quality. Humans use visual and touch-based methods to test avocados at the grocery store with a fair amount of accuracy, so logically, AI can also be trained to identify spoiled fruit without looking inside. And being able to use phone camera technology to do so allows for more non-destructive testing to be possible.

With the emergence of Artificial Intelligence and Data Science becoming increasingly integrated into daily life, it is recommended for food professionals to learn about various concepts related to machine learning and models, to verify the accuracy of these predictive models and possibly use them to conduct further research. For consumer purposes, this research could lead to possible smartphone applications designed to analyze food properties in grocery stores, with current research limited to the use of photo boxes

and the need to Photoshop to create a white background to prevent interference with the AI model. Theoretically, colorimeters and heatmap generation might be able to allow AI to distinguish between sample and background, eliminating the need to use Photoshop in the process allowing for more flexibility to conduct these tests in conditions more similar to marketplaces or storage areas. As a result, this research could increase efficiency in supply chains and make any phone a portable quality checking device. This discovery can also increase food quality as processors can ensure that ingredients are of consistent quality when making products. In terms of food waste, being able to identify foods at-risk of spoiling earlier can allow consumers to prioritize those items before having to throw them away.

### Reference:

Lee, I.-H., Li, Z., & Ma, L. (2025). Explainable AI and mobile imaging for non-destructive avocado ripeness and internal quality assessment to reduce food waste. *Current Research in Food Science*, 11, Article 101196. <https://doi.org/10.1016/j.crefs.2025.101196>