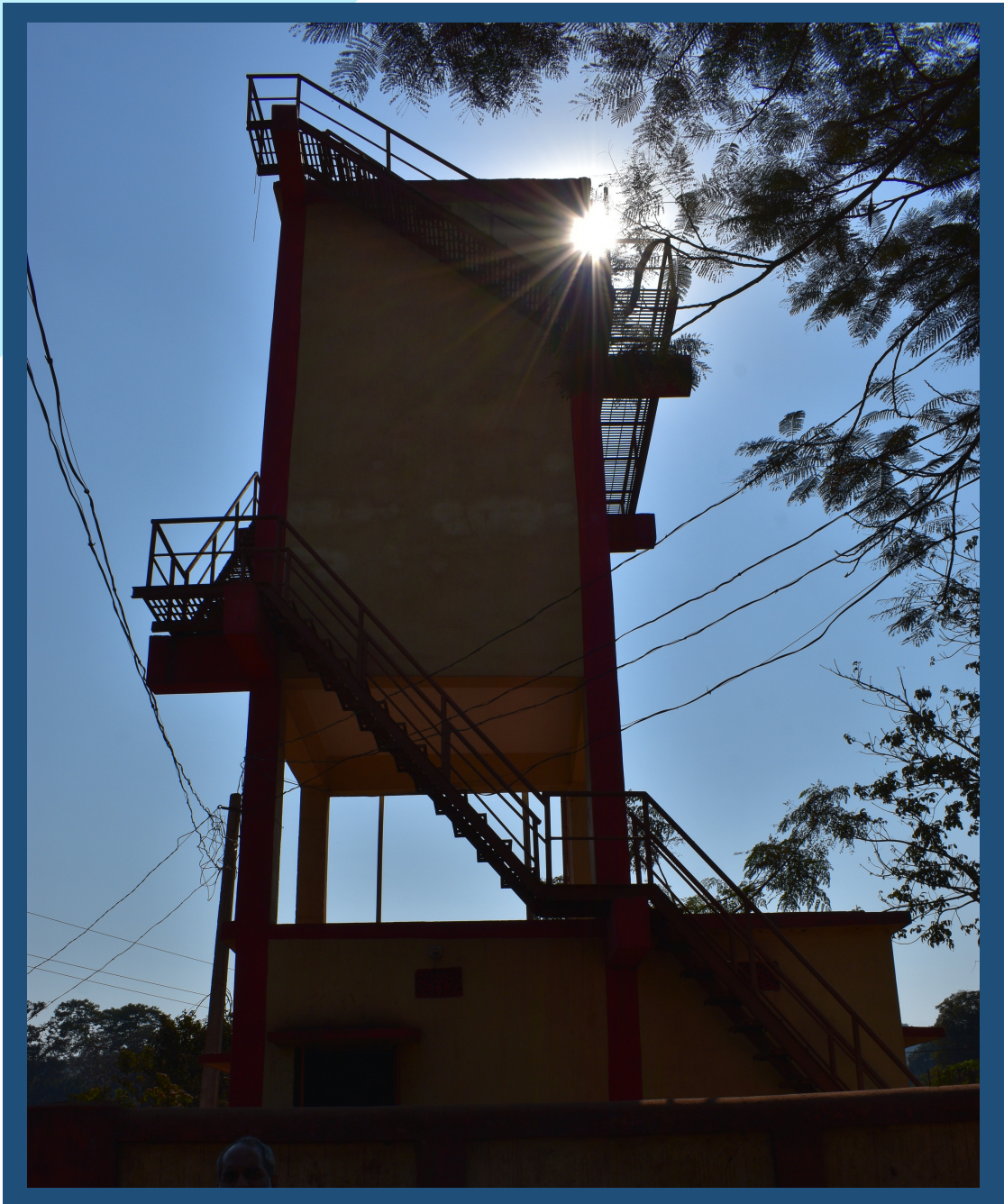


# WATER WE DOING?

## AN AGUACLARA NEWSLETTER



*A Hydrodoser tower in Lahanda, India. AguaClara Reach partnered with Gram Vikas to complete this Hydrodoser project, which serves 200 people.*



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# Letter from the Editors

Hello AguaClara members, supporters, family, and friends,

We are excited to present you with the 2020 AguaClara Newsletter. In this edition, you will find everything from ways that the Cornell team has adapted during the COVID-19 pandemic, to AguaClara Reach projects in India, and spotlights of Cornell graduates and AguaClara Reach volunteers. Through all the challenges of the past year, the AguaClara community has found ways to continue learning and growing together.

Thank to you to contributors Yitzy Rosenberg, Anishka Singh, Luke Meyer, Saul Bernaber, Nicole Wang, Monroe Weber-Shirk, Alissa Diminich, Serena Takada, and Fletcher Chapin for helping to make this newsletter.

Thank you for being a drop in the AguaClara bucket.

With love,  
Zoe Maisel, Anna Canny, Emily Wood, and Ian Cullings

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# AguaClara Cornell

## A MESSAGE FROM THE AGUACLARA CORNELL TEAM LEADS

Over the last 15 years, AguaClara Cornell has developed innovative, open-source water treatment technology. On June 29th, Cornell's College of Engineering released [this statement](#) announcing the retirement of AguaClara Cornell in its current form and ending Monroe's contract with Cornell. As a team, we strongly reject these changes, as they will impact our ability to continue working to provide safe water on tap, and engaging students and community members in this process. You can read the official statements on these changes from AguaClara Cornell [here](#) and AguaClara Reach [here](#).

While this came as a shock to the team, we are working with the College of Engineering to reinstate the program. The research, design and advocacy for safe and sustainable water on tap that AguaClara Cornell has been so committed to will not be departing from the university, but rather may manifest itself in a new form moving forward. A project team is not defined by its geographic location, its physical space, or even its faculty advisor, but by its students and the goals they accomplish together. We are grateful for all of the passionate alumni and members that are a part of the team. By seeing the support and dedication of so many, we know this is just another bump in the road, and we are looking forward to the future.

Nish, Luke, and Saul



**Anishka Singh**

She/Her/Hers  
Computer Science,  
2021

I got to tour the AguaClara Lab in high school, and that is one of the reasons I chose to come to Cornell!



**Luke Meyer**

He/Him/His  
Applied and Engineering  
Physics, 2022

I chose Cornell as my undergraduate educational institution because it was home to the AguaClara program.



**Saul Bernaber**

He/Him/His  
Electrical and Computer  
Engineering, 2021

I was a part of the Cornell Pre-freshman Summer Program in Ithaca the past two summers. The summer in Ithaca is beautiful!

# AguaClara Cornell Graduates

## CONGRATULATIONS AND GOOD LUCK!

AguaClara is only as strong as the people that make up the program. Thank you to all of the 2020 graduating members. We are so grateful for the work you've done, leadership you've provided, and friendships you've nurtured! Thank you for your dedication and we look forward to crossing paths in the future. You will always have a family with AguaClara.

### AguaClara Cornell 2020 Graduating Members:

Nathan Bala, Ian Cullings, Eric Dalpe, Ananya Gangadhar, Madeline Garell, Ashley He, Rosie Krasnoff, Barbara Oramah, Giancarlo Pacenza, Alycia Storch, and Srilekha Vangavolu.



## Ian Cullings

he/him/his

### ACC Research Teams:

UASB & Plantita researcher  
Team Lead 2019-2020

I'm heading to Providence to work for the Department of Environmental Management (with fellow AguaClara alum Clare O'Connor!).

## Alycia Storch

she/her/hers

### ACC Research Teams:

High Flow Float Valve, Ram Pump

I will be completing my M.Eng in Mechanical Engineering at Cornell in the fall.



# AguaClara Cornell Donors

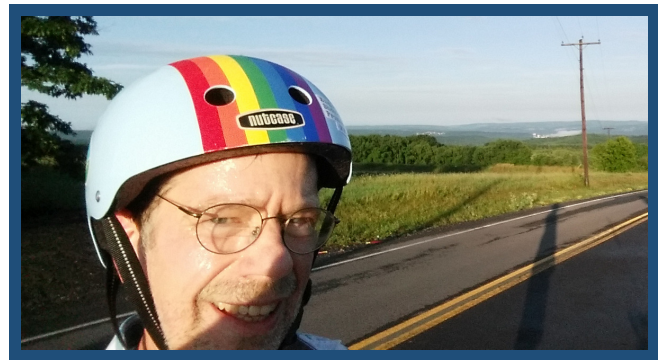
Thank you to all of the AguaClara Cornell donors who make this critical program happen!

# A Message from Monroe

In 2004, I wanted to start a water treatment focused project. I told the project team I was advising that I needed to take a semester off to teach the first version of the *Safe Water on Tap* course. The project team students said they wanted to continue a project related to Honduras even if I wasn't able to help them. And so they did. And that is how AguaClara got started. So let's be very clear. AguaClara got started without my help. And it has always been my goal that AguaClara continue when I retire. So now we get to figure this out a little earlier than I intended.

The days since June 24 when I was informed of all of the changes have been a rollercoaster ride of anger, sadness, relief, and my stubborn optimism. I have been encouraged by the strength of AguaClara as a beloved community of learners. I've felt the love of the AguaClara community with many of you sharing kind words. Many at Cornell have also reached out and shared their sadness.

What's next for Monroe? I enjoy solving problems that connect to social justice. I love being an informal guide by your side, and developing new understandings of the physics of water treatment. Troubleshooting ProCoDA is fun! I'm doing my best to look toward the open door rather than back at the door that just closed. I know I'm on the right path when creativity soars.



*Monroe enjoying a beautiful trike ride across Mount Pleasant.*

I will miss teaching and am confident that I will find new ways to continue it. I'd be delighted to be a mentor for the AguaClara Cornell University and AguaClara Ohio State University programs. I recently joined the AguaClara Reach Board. Working on the AguaClara textbook and the design engine, providing technical support and webinars, and guiding university project teams are all parts of AguaClara Reach's mission that I'm excited to work on.

I've spent many hours in conversation with partners in Honduras and Colombia. I've reassured them that I am committed to AguaClara and continuing to improve our technologies. I'm helping [Agua Para el Pueblo \(APP\)](#) troubleshoot the plantita and figure out why it performs poorly with floccs that have lots of organics. I plan to continue providing technical support for AguaClara partner organizations. I want to keep on learning!

Let's keep finding our allies to foster a community of learners that creates a safe place for mistakes and growth. It's more important now than ever.

Monroe Weber-Shirk

# Research & Technology

## UPFLOW ANAEROBIC SLUDGE BLANKET (UASB)

Since 2013, the Upflow Anaerobic Sludge Blanket (UASB) team has been developing an electricity-free wastewater reactor for small-scale application in rural communities. Using funds from the [EPA P3 Phase I and Phase II grants](#), the wastewater team fabricated and installed its first pilot-scale UASB reactor at the Ithaca Area Wastewater Treatment Facility (IAWWTF). In Spring 2020, the team developed a feedback system to monitor and control reactor temperature, and discovered healthy sludge granules forming inside! Due to imminent construction at the wastewater plant, the UASB reactor had to be disassembled and is being stored until research can resume.



*Healthy sludge granules found in the UASB reactor.*

The team is eager to learn how organics removal efficiency depends on the depth of sludge granules, and if pulsed flow can reduce the formation of preferential pathways through the sludge bed.



*Lydia LaGorga fixes tubing at the top of the UASB reactor.*



*The UASB reactor is wrapped with heat tape to control its temperature at the Ithaca Area Wastewater Treatment Facility (IAWWTF).*

# NSF I-Corp Program



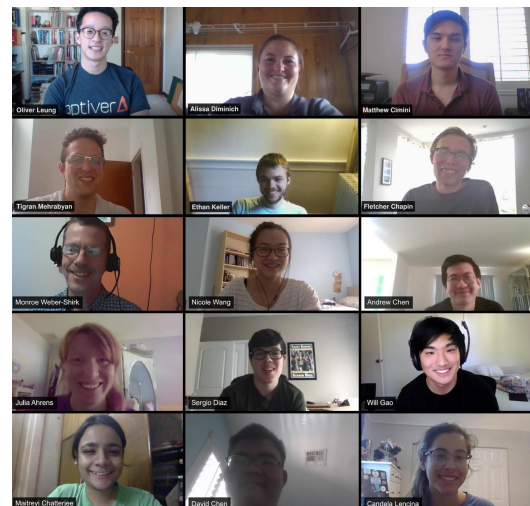
From left to right, top to bottom. Dr. Chi Ho Sham incoming president of AWWA, Yitzy Rosenberg Co-Entrepreneurial Lead, Dr. Monroe Weber-Shirk Technical Lead, Marcin Sawczuk Entrepreneurial Lead, and Brent Alspach Industry Mentor.

On July 7th, AguaClara Cornell began the National Science Foundation's Innovation Corps (I-Corps) program. The program is designed to help academics turn their research into a business by developing a Business Model Canvas and interviewing over 100+ stakeholders in the industry. Through these interviews, the team hopes to develop an understanding of potential customer segments, and with that knowledge build a business plan that will allow for AguaClara technology to enter markets in the United States. For example, we had the opportunity to interview Dr. Chi Ho Sham (pictured), the incoming president of the American Water Works Association (AWWA). As a founder and member of a water innovation group for the North Eastern United States, Dr. Sham gave us some essential insights into what the current innovation ecosystem looks like and what potential mistakes we can avoid. In addition, he connected us with some invaluable colleagues that we hope to interview in the future. Thank you, Dr. Sham!

## AguaClara Infrastructure Design Engine

This summer, a team of Cornell students and AguaClara Reach members are working on Version 2 (v2) of the AguaClara Infrastructure Design Engine (AIDE). AIDE Version 2 is designed in Onshape, a free and open source software. The development of AIDE v2 will allow AguaClara Reach to better serve Implementation Partners by rapidly designing custom AguaClara treatment systems, and as a result, increasing global access to safe water on tap.

Check out [our blog](#) to stay up to date with our progress!



The AIDE team working in a recent virtual meeting.

# AguaClara Reach

## A MESSAGE FROM THE BOARD PRESIDENT

When we first decided to work on a second issue of Water We Doing, we were just a month into COVID-19 hitting the US. It felt like we were already having a pretty tough year, but most states seemed to be reacting cautiously and we had hope that if we continued to work together, the curve would flatten. We recognized that this global pandemic further highlighted the need for access to clean drinking water around the world. And while our Board, staff, and amazing volunteers were working through their own adjustments to pandemic, we felt renewed in our purpose.

Then police officers in Minneapolis killed George Floyd. And he was just one of many Black Americans whose lives have been taken. His death lit a spark, and we saw, and continue to see, ongoing protests against police brutality across the United States. We looked internally at our own organization and recognized that we need to do more to better represent the people we work with and for. We strive to be an inclusive organization and we know we can do better. This is something we are actively working towards, and appreciate feedback on how we can improve.

And now we're facing challenges within the AguaClara community. With Cornell University's recent decision to retire the AguaClara Cornell program, and with the departure of AguaClara Cornell's founder, Dr. Monroe Weber-Shirk, from the University, we also face some questions about what the future of AguaClara looks like. I don't have an answer to that today. We are actively working with ACC students to develop a plan for how they can move forward and how AguaClara Reach (ACR) can help.

With everything that has happened recently, it can be challenging to reflect back on the successes of the last year. ACR has made great strides as we work towards our mission of providing global access to safe drinking water. We brought on new board members and our recent fundraising efforts have yielded great returns which allowed us to pursue work on the AguaClara Infrastructure Design Engine (AIDE). Between the efforts of our Summer 2019 intern (Emily Spiek), our India Program Project manager (Fletcher Chapin), and countless volunteers, our work with Gram Vikas in India has been successful. Fletcher's field work in January 2020 included the completion of two Hydrodosers, and we were fortunate to get Fletcher back to the US before international lockdowns started amidst the emerging pandemic. Our next year of work will build upon our existing successes. We will lean on each other as we face new challenges and opportunities.

Warmly,  
Alissa Diminich  
ACR Board President  
[adiminich@aguaclarareach.org](mailto:adiminich@aguaclarareach.org)



# AguaClara Reach Board of Directors

This year, the AguaClara Reach (ACR) Board of Directors has grown to 11 members! ACR Board Members (shown in the image on the right, from left to right) John Finn, Serena Takada, Ben Gassaway, Kelly Stefanski, Alissa Diminich, Zoe Maisel, and Blixys Taetzsch are continuing their service this coming year. New ACR Board Members, voted into the Board in July 2020, are introduced below. ACR Board Officers for 2020-2021 are Alissa as President, Blixys as Treasurer, and Zoe as Secretary. The entire Board is grateful to work with great employees, volunteers, and partners!



Board Members at ACR's Annual Strategic Planning Retreat in February 2020.



Subhani graduated from Cornell in 2017 and then worked for two years with ACR in India. She currently works for WaterAid America as a Program Development Officer, overseeing corporate grant management for WASH projects in Asia.

She/Her/Hers

## Subhani Katugampala



Cheer graduated from Cornell University with a B.S. in Biological Engineering (2019), and now works at the Ramboll Group as a Water Resources Engineer.

She/Her/Hers

## Cheer Tsang



Monroe works to empower partner organizations that in turn empower communities to build, operate, and sustain their AguaClara water treatment plants.

He/Him/His

## Monroe Weber-Shirk



Skyler graduated from Cornell with a B.S. in Operations Research Engineering in 2016, and a Master's in Computer Science in 2019. He spent a year working with APP in Honduras on a Fulbright Research Grant.

He/Him/His

## Skyler Erickson

# AguaClara Reach Donors

**Diamond**  
\$10,000+



**Gold**  
\$5,000+



# AguaClara Reach Volunteers

Dear AguaClara Family,

I hope that you and your loved ones are safe and well.

On behalf of AguaClara Reach (ACR), I would like to thank all AguaClara Reach Volunteers (ACRV) for their generosity during these extraordinary times. Despite changes to the AguaClara Cornell Program, ACR continues to do our part in extending the reach of AguaClara Technologies so we can achieve safe water on tap for all. This year, ACR is focused on hiring full time staff and working with AguaClara Cornell students to complete the development of the AguaClara Infrastructure Design Engine (AIDE). Funding is essential and many ACRV have joined the Fundraising Committee to help ACR realize these goals. ACRV prepared corporate sponsorship programs, applied for grants, started the COVID-19 Water is Life crowdfunding campaign, and developed more creative ways to fundraise like donating birthdays and proceeds from their artwork!

Since last year, ACR has welcomed many new volunteers from different backgrounds. Every ACRV brings fresh ideas and perspectives to ACR to help ACR grow. If you are interested in joining the ACRV, please sign up [here](#).

Stay engaged by connecting with us on social media and by supporting our [COVID-19 Water is Life Fundraiser](#).

Stay well,  
Serena Takada  
ACR Volunteer Manager  
stakada@aguaclarareach.org

## Denise Alter



She/Her/Hers

### **Why Did You Choose to Volunteer with ACR?**

I wanted to lend a hand to this organization involved in a very noble cause of providing safe drinking water to global communities

**Fun Fact:** Upon invitation by my host in Chiang Mai, Thailand, I soaked my feet in a vat filled with live fish. The sensation of hundreds of small fish nibbling on my toes tickled me!

## Cheer Tsang



She/Her/Hers

### **What work have you done as a volunteer?**

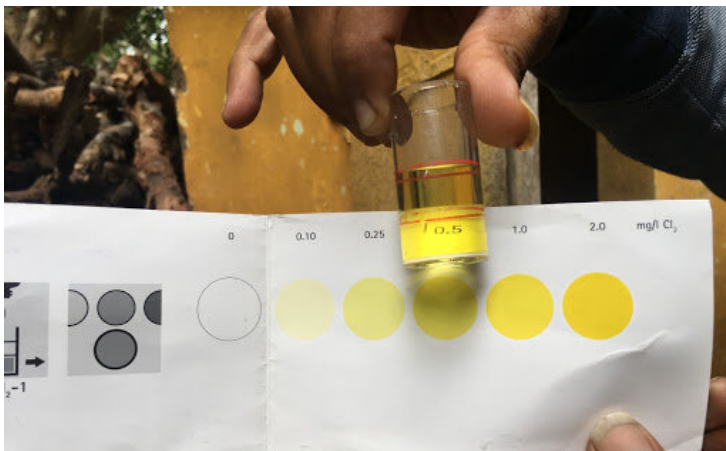
Jennifer, Zoe, Alissa, and I worked on a proposal for funding from the Ramboll Foundation.

**Fun Fact:** Jennifer, Isa, and I stopped by a Drinking Water Museum during our trip to Taiwan!

# Hydrodoser Installations in India

In January 2020, AguaClara Reach (ACR) and Gram Vikas (GV) completed the installation of two Hydrodosers in India. The Hydrodoser is AguaClara's gravity-powered chlorine doser which automatically and accurately provides flow-paced disinfection of low-turbidity water. ACR and GV partnered in 2017 to design, construct, and install Hydrodosers in several locations throughout the Indian state of Odisha.

As a nonprofit technical support organization, ACR seeks to promote and facilitate the implementation of AguaClara water treatment technologies around the world. We fulfill this mission by transferring technical expertise to local partners. With the hard work of GV Manager Joseph Kalassery, GV Technician Apriya Maharana, GV Engineer Debashish Mohapatra, and ACR Project Manager Fletcher Chapin, work in India has progressed exceedingly well. The two Hydrodosers installed earlier this year are located in Patimul and Majhi Ukhura.



*Hydrodoser chlorine residual testing results (at tap closest to Hydrodoser) showing safe dosage of chlorine for disinfection.*

After construction and start-up, the ACR and GV team completed calibration and testing; chlorine residual tests showed that the Hydrodosers were delivering accurate doses of chlorine to successfully disinfect the drinking water! Together, the Patimul and Majhi Ukhura Hydrodosers serve 360 people with chlorinated water. With the proper care and maintenance, these Hydrodosers will continue serving these communities for years to come. Check out [our blog](#) for more information about the Hydrodosers.



*Installation team members connecting the Hydrodoser system to the existing water distribution network.*



*Commemoration plaque at the Majhi Ukhura Hydrodoser.*

# AguaClara Cornell Trip to Honduras



*Students, APP members, and plant operators in Gracias, Honduras.*

In January 2020, the ACC Team visited Honduras, thanks to its partner Agua Para el Pueblo (APP). The purpose of this trip, part of a Cornell course on Engineering in an International Context, was to visit AguaClara plants in the field and understand both the engineering and community context in which they work. Throughout the trip students visited plants across Honduras and talked with plant operators, community members, and APP members.

Students were also able to visit Zamorano University in Honduras, which partners with Cornell on research and has an educational AguaClara plant installed on the campus! Cornell and Zamorano students met through the 100,000 Strong in the America's exchange program, and were able to learn more about the use of pesticides and the agricultural background of Honduras. Zamorano student Brenda Solorzano Cuesta then came to Cornell with the trip to study and research pesticide pollution in water from January to March.



*Students tour a plant in Zamorano, Honduras.*



*Students visit the AguaClara plant in Jesus de Otoro, Honduras.*

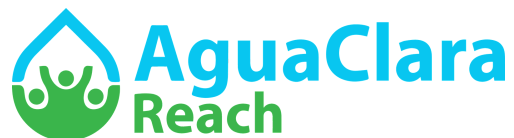
Additionally, during the visit members of ACC installed the newest version of the AguaClara Vertical Ram Pump (ACVRP) at the 120 L/s plant in Gracias. The purpose of the ACVRP is to pump clean water from the basement of the plant back up to the chemical stock tanks used for chemical dosing and water storage tanks used for plant plumbing. This is currently a task that plant operators must do and can be a time and physical burden. The results from Gracias were promising. The pump performed as well as it had during testing in the lab and being able to install it in a plant provided the team with a lot of useful information to further improve the design.

# WATER WE DOING?

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