



*virtu*AIChE®

This month's meeting:

*Primary (with live discussion/live chat) Wednesday, November 16 at 9 pm ET (US) / 1 am GMT
Alternate 1 (with live discussion/live chat) Thursday, November 17 at 7 am ET (US) / 11 am GMT
Alternate 2 (with live discussion/live chat) Thursday, November 17 at 1 pm ET (US) / 5 pm GMT*

MODELING AND DIGITAL TWINS FOR PROCESS DEVELOPMENT

By: Charles Siletti



While the general idea of digital twins has been in use for nearly ten years, the chemical process industry has employed similar computational technologies for decades. Originally developed for the petroleum and petrochemical industries, process simulation tools now have applications across the entire industry, and the barriers to implementation have never been lower. This talk reviews a series of case studies ranging from hydrometallurgical processing to biopharmaceutical production. The discussion includes both process improvement and process monitoring applications.



Charles Siletti earned his Bachelor's in Chemical Engineering at the University of Maine and his PhD in Chemical Engineering at the Massachusetts Institute of Technology. He has spent the intervening years working on all aspects of computer aided process design and operations. He has worked with (and on) many of the major commercial process simulation tools and has completed numerous projects involving process design and economics, real-time process optimization, equipment monitoring, batch process simulation and batch process scheduling. Dr. Siletti currently manages the SchedulePro Designer product at Intelligen, Inc.

***Note that registration for VLS meetings is required.
Our meetings are still free to attend and open to all.***

November Meeting Registration Information

Primary
(Live Presentation/Live Chat)
November 16 at 9 PM EST / 1 AM
GMT

Register in advance for the
[Primary Meeting](#)

Alternate 1
(Recorded Presentation/Live Chat)
November 17 at 7 AM EST / 10 AM
GMT

Register in advance for the
[Alternate 1 Meeting](#)

Alternate 2
(Recorded Presentation/Live Chat)
November 17 at 1 PM EST / 5 PM
GMT

Register in advance for the
[Alternate 2 Meeting](#)

After registering, you will receive a confirmation email containing instructions for joining the meeting, along with add-to-calendar links.

Student Co-op and Internship Presentation Competition

Did you enjoy your time as an intern or co-op, and work on a unique or exciting project? Then enter for a chance to share your experience, practice your presentation skills, and win great awards!

Prizes:

- \$500 1st place
- \$300 2nd place
- \$200 3rd place(s)

Participants must meet the following qualifications:

- undergraduate ChemE students (graduating Dec 2022 - Aug 2024)
- co-op or intern, spring, summer or fall 2022
- teams of 2 students are permitted if both meet qualifications

Students should present their original work done during the co-op or internship. Students should receive their mentors' approval before submitting an abstract. Students must be available to present on **Wednesday, February 22, 2023, at 9:00 PM** Eastern Standard Time (USA) with excellent lighting, audio and video along with fast internet connection (>20 mbps) suggested.

Presentations should be less than 10 minutes and will be judged by practicing chemical engineers and AIChE VLS members, based on:

- application/demonstration of chemical engineering principles to student's work
- understanding of process and/or chemistry
- clarity/appearance of slides and presentation
- understanding how student's work is used/applied/extended into other applications/industries
- ability to answer questions

Timeline:

- 1/2/2023 - Abstracts due
- 1/16/2023 - Students notified of acceptance
- 2/8/2023 - Presentations due
- 2/15/2023 - "Dry run" to test ZOOM connections/audio/video
- 2/23/2023 - Competition

The submission form is available online at <http://virtual.iche.org/interncontest2023>.

Submit questions to Marc Clithero, Competition Chair, at marc.clithero@cmg.kz.

Summary of the 2022 Member Feedback Survey

The VLS conducted a member feedback survey this summer. Thank you to everyone who participated! The input was very valuable, confirming that many things are working well and providing input on what our members would like to see from the VLS. Below is a summary of the key results. If you have any comments or questions, please contact Andrew Riederer, Director of Member Feedback, at ajriederer@gmail.com.

Engagement

- Do you feel included in the VLS? → **YES 94%**
- How likely are you to recommend the VLS to a colleague? → **8 / 10**
- Have you been getting emails announcing the meetings? → **YES 95%**
- How is the frequency of communication? → **Just Right 92%**
- Do you know the VLS holds each monthly meeting 3 times? → **YES 84%**
- Does one of the 3 meeting times generally work for you? → **YES 92%**

Interests

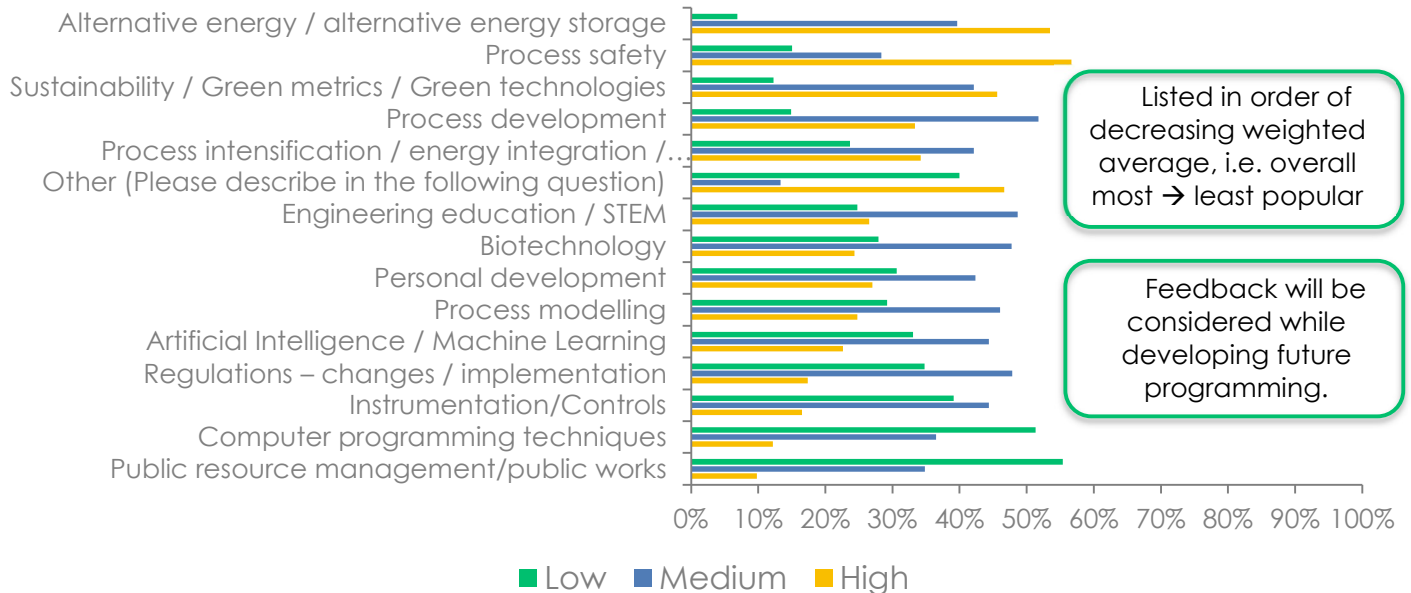
- What do you like most about the VLS?
 - **Local section not available or convenient; Webinars are interesting and engaging; Keeps me connected to the profession**
- What motivates you to attend VLS webinars?
 - **Learn new perspectives; Stay abreast of changes in the field; Exercise your mind**
- What types of speakers are you most interested in hearing from?
 - **Industry Professionals, Consultants to Industry, Academia**

What Else Members Would Like to See from the VLS

- Is there anything you would like the VLS to do that it is not currently doing? If so, what?
 - **Podcast → 19%**
 - **Better Website → 15%**
 - **Events outside of monthly meetings → 15%**

Executive Committee is evaluating these possibilities!

Please rate your interest in the following online webinar / meeting topics.



Introducing Our July Meeting Raffle Winner!

Every month, a dues-paying member who signed in for the duration of the monthly webinar is selected at random to win a free year of VLS membership (Executive Committee members and previous winners during the current year are ineligible). We are pleased to introduce our July winner – Alex Platon.



Q: What made you want to be a chemical engineer?

A: I followed into my father's footsteps because I found his phone calls and work related meetings at home intriguing. Back then I was able to visit his workplace and the most impressive thing I'd ever seen was an analog computer that was used to simulate chemical kinetics and hydrodynamic phenomena.

Q: What school(s) did you attend?

A: The Oil and Gas Institute in Romania, and Washington State University (go Cougars!)

Q: What kind of jobs have you had?

A: Process engineer in a delayed coking unit, technical support and R&D engineer, post-doc, and college instructor. Plus a couple of summer jobs in an electronics repair shop and paper

products retail.

Q: Where do you live?

A: Bartlesville, Oklahoma, a place with a long oil & gas history.

Q: Why did you join the Virtual Local Section?

A: The local section isn't as active as we'd like.

Q: Any hobbies that are connected to chemical engineering?

A: Recently got into the hobby of 3D printing and found out that knowledge of viscoelastic flow is a big contributor to successful prints!

Introducing Our August Meeting Raffle Winner!

Every month, a dues-paying member who signed in for the duration of the monthly webinar is selected at random to win a free year of VLS membership (Executive Committee members and previous winners during the current year are ineligible). We are pleased to introduce our August winner – Shrikant Vempati.



Q: What made you want to be a chemical engineer?

A: What made you want to be a chemical engineer: In my school, I was good in math and science, so I wanted to become an engineer since middle school. During my high school years, I happened to see my cousin, who was a chemical engineer - working with some operating company in India, who inspired me to pursue chemical engineering. I was impressed the way the chemical engineering field was so broad, and its contribution to the mankind in day-to-day life.

Q: What school(s) did you attend?

A: NIT Raipur (India) for Bachelor's and Texas A&M University-Kingsville (USA) for Master's (both Chemical Engineering) NIT Raipur (India) for Bachelor's and Texas A&M University-Kingsville (USA) for Master's (both Chemical Engineering).

Q: What kind of jobs have you had?

A: Process Design Engineer job with Engineering Company in Oil & Gas industry

Q: Where do you live?

A: Houston, TX

Q: Why did you join the Virtual Local Section?

A: Always been Interested to be current on new development in chemical engineering field, so I thought it would be nice if I could join VLS.

Q: Any hobbies that are connected to chemical engineering?

A: Reading new articles on AIChE website or web, attend webinars to get acquainted with current development in the chemical engineering field.

Introducing Our September Meeting Raffle Winner!

Every month, a dues-paying member who signed in for the duration of the monthly webinar is selected at random to win a free year of VLS membership (Executive Committee members and previous winners during the current year are ineligible). We are pleased to introduce our September winner – Paul Shuey.



Q: What made you want to be a chemical engineer?

A: I wanted to become a chemical engineer because being a wet lab bench chemist with my BS from Centenary College of Louisiana was not getting it for me. I wanted to be directive in projects rather than just be a team member.

Q: What school(s) did you attend?

A: BS Chemistry Centenary College of Louisiana and BS Chemical Engineering Georgia Institute of Technology

Q: What kind of jobs have you had?

A: Before becoming a chemical engineer, I worked as a chemist in the Civil Engineering (Daniel) Environmental Lab at Georgia Institute of Technology. After becoming a chemical engineer, I went to work at Hercules Aerospace in Research and Development in Utah in composite structures and followed with stints in solid propulsion ingredients and motor processing. I followed that with

processing and production at Atlantic Research Corporation in Arkansas. When the Berlin Wall fell, I moved to environmental and safety engineering and got my Professional Engineering license. I then jumped to a programmatic role in going to Lockheed Missiles and Space in Arlington, Virginia, to work on Start I demilitarization. After 9/11, I went to Horne Engineering Services supporting safety work. At present, I am working for Leidos, supporting safety work.

Q: Where do you live?

A: I live on the high plains (a.k.a. the Llano Estacada) of West Texas, in Lubbock, which is also home to Texas Tech.

Q: Why did you join the Virtual Local Section?

A: I joined the VLS because local meetings in DC (where I kept membership while I lived there) were mostly an unattainable major effort to attend, often an hour and a half to two hours away at drive time. I did go to and enjoyed National Capitol Section meetings every now and then; but with my heavy workload and significant time requirements for family and youth organizations, VLS still allowed me the opportunity to attend meetings regularly. Happily, I have been a member for quite a while.

Q: Any hobbies that are connected to chemical engineering?

A: The discipline of Chemical Engineering is a lot like planetary science, you can find strings of things that relate to it everywhere. Given that notion, the hobbies of playing guitar and singing in a church choir might relate to chemical engineering, but not in a way that most of us think as being related to chemical engineering; so, I will say that I do not have any direct chemical engineering related hobbies. However, I have helped the local student AIChE section as a judge in a regional meeting and look forward to doing so again when the regional meeting rotates again to Texas Tech.

AIChE News

The AIChE hosts technical conferences around the world. Check www.aiche.org/conferences for registration and presentation information for this year's events.

Dates	Event
Nov 29	CCPS South East Asia Members Meeting
Dec 1-3	3 rd Optogenetic Technologies and Applications Conference
Dec 2	CCPS India Regional Meeting
Dec 5-6	5 th Food Innovation and Engineering (FOODIE) Conference
Dec 6-8	3 rd Competitive Energy Systems Symposium
Dec 9-11	6 th International Conference on Plant Synthetic Biology, Bioengineering and Biotechnology
Dec 9-11	5 th International Conference on Microbiome Engineering
Dec 14-16	7 th Bioengineering and Translational Medicine Conference
Dec 15	Roadmapping Workshop #2: Current and Future Industry Needs for Technician and Operator Training
Jan 8-11, 2023	ICBE 2023 – 12 th International Conference on Biomolecular Engineering

Upcoming VLS Meetings

The VLS has monthly meetings. The following meetings have firm dates and speakers.

Dates	Topic
Nov 16-17 2022	Modeling and Digital Twins for Process Development
Dec 14-15 2022	Holiday Social
Jan 25-26 2023	Process Modeling of Adsorption Processes
Feb 22-23 2023	Student Competition
Mar 22-23 2023	Alternatives to Toxic Substances

Past VLS Meetings

The VLS records its monthly meetings and archives them on the AIChE Academy website in case you missed a meeting or are looking for a particular topic. See below for current recordings. To view a recording as a VLS member, click on the link to go to the recording. Checkout and use the "Purchase with Money" option. The cost should show as \$0.00. Purchase the recording.

Date	Event
Oct 2022	Decarbonization of Chemical Manufacturing by CO2 Electrolysis
Sep 2022	Anaerobic Digestion: Sustainability through Organic Waste Management
Aug 2022	Boost Green and Sustainable Chemical Development with AI
Jul 2022	The TurboPy Approach to Learning Python

Date	Event
Jun 2022	<u>Automation Cybersecurity: Connectivity's Double-Edged Sword</u>
May 2022	<u>Evaluating our Assumptions: The Need for Diverse Perspectives</u>
Apr 2022	<u>Lessons on Incident Investigations</u>
Mar 2022	<u>Converting CO₂ into useful products?? What's up with that??</u>
Feb 2022	<u>2022 Student Co-Op and Internship Competition hosted by Noah Meeks</u>
Jan 2022	<u>Biomimicry: Green Chemistry Innovations Inspired by Nature</u>
Nov 2021	<u>Reimagining Energy and the Case for Greening Companies</u>
Oct 2021	<u>Don't Wake Sleeping Dragons: Managing Often-Overlooked Ignition Hazards</u>
Sep 2021	<u>Beyond Unconscious Bias Training: What Works?</u>
Aug 2021	<u>How can nuclear energy help fight climate change?</u>
Jul 2021	<u>Automation of Process Simulation and Data Analytics with MATLAB</u>
Jun 2021	<u>Chemical Fuels in Carbon Neutral Energy system</u>
Apr 2021	<u>Impactful Online Meetings</u>
Mar 2021	<u>AI Deployment in Refinery Operations</u>
Feb 2021	<u>Overcoming the Challenge of Applying Chemical Engineering Principles to the Art of Winemaking</u>
Jan 2021	<u>DIERS Technology Fundamentals II: VLS January 2021 Webinar</u>
Nov 2020	<u>Protecting Lives and Livelihood: Hazardous Materials Classification and its Impact to the Supply Chain</u>
Oct 2020	<u>Chemical Safety Board (CSB) Accidental Release Reporting Rule</u>
Sep 2020	<u>Internships and Undergraduate Education</u>
Aug 2020	<u>Physical Property Models to Design Better Chemical Products</u>
Jul 2020	<u>Julia - A Fresh Approach to Technical Computing</u>
Jun 2020	<u>The Next Digital Leap to AI (An Interactive Webinar)</u>
May 2020	<u>Challenges and Benefits of Remote Operator Training using Cloud-Deployed High-Fidelity, First-Principles Based Standard Operator Training Simulators (SOTS)</u>
Apr 2020	<u>NASEM Chemical Engineering in the 21st Century Study: Give your input!</u>
Mar 2020	<u>Is Your Focus Your Magic!</u>
Feb 2020	<u>DIERS data/standards in HAZOPS of two phase flow</u>
Jan 2020	<u>A Brief History of Measurement</u>
Nov 2019	<u>Using Thermal Imaging to Guard Industrial Facilities</u>
Oct 2019	<u>Python for chemical engineers: Getting started</u>
Aug 2019	<u>Reactive Chemical Hazards</u>
Jul 2019	<u>Should I Py or Should I Fortran?</u>
Jun 2019	<u>Design Considerations for Organic Electronic Materials and Devices</u>
May 2019	<u>Why Can't You Compete Without Virtual/Augmented Reality in Your Plant</u>
Apr 2019	<u>The Chemistry of Bourbon: The "spirit" of molecules</u>
Mar 2019	<u>Demystifying Professional Engineering Licensure and How to Put it to Work for you</u>
Feb 2019	<u>Municipal Wastewater and Sludge Are a Resource, Not a Waste: Coping with Tightening Water Supplies and Limited Landfill Availability</u>

The Virtual Local Section's Executive Committee

Officers

Chair:	Steve Treese
Senior Vice Chair:	open
Vice Chair:	Hashim Al Hajji
Immediate Past Chair:	Paul Adamson
Secretary:	Laura Gimpelson
Acting Treasurer:	Kirsten Rosselot

Directors

Member Care	Fred Fischl
Programming	Kirsten Rosselot
Newsletter	Shannon Brown
Member Feedback	Andrew Riederer
Publicity/Website	Paul Wissmann
Student Competition	Marc Clithero

Did You Know?

You can visit [the VLS website](#) for more information on the Virtual Local Section's mission, activities, and membership. Also at this website, AIChE student members and VLS members can watch previous webinars for free.

We're in this Together

The ongoing COVID-19 situation has provided us with a reminder that even in uncertain times, AIChE is a diverse community of people who lead, create, inspire and learn—together. AIChE is here to help. Knowing that many of our members are working virtually, AIChE has created this page to act as a hub for online content, access to communities, and communication updates. [Learn more.](#)

Subscription Information

Current fully paid members of the Virtual Local Section receive this newsletter. If you wish to update your email address, contact the AIChE's New York Office for Permanent Address Corrections at xpress@aiCHE.org or 1-800-242-4363.

Continuing Education Credits

Members of AIChE can receive 1 hour of continuing education/professional development credit for attending Virtual Local Section webinars. Send your name, the certificate number on your professional engineer's license, and the licensing entity (state or country) in which you are licensed to our Secretary, lg_environmental@bellsouth.net, to receive one hour of continuing education credit for attending this meeting.