

# VALLEY ENGINEERING, SCIENCE & TECHNOLOGY CLUB

[www.engineersaz.com](http://www.engineersaz.com)

February 2017 NEWSLETTER

Editor: Noelle Jobson

The Engineers Club is a social organization which meets regularly for lunch with a speaker on a technical topic. Spouses are invited and many attend regularly. Short field trips are occasionally scheduled. Membership is open to anyone who has worked in or related to the engineering or scientific fields. Meetings are held at 11:30am on the first Friday of each month (unless otherwise noted), October through June, at Briarwood Country Club, 135th and Meeker in Sun City West, AZ  
Visitors are always welcome -- just call Reservations at (623)546-9112 to let us know you are coming.

## February 3 PROGRAM

**To Catch A Cancer: Using Biotechnology to Improve Detection of Cancer**

Karen S. Anderson, MD, PhD. ASU Biodesign Institute



Karen's laboratory is focused on understanding how the immune response can be used to detect and alter cancer development. The development of effective cancer immunotherapy requires identification of target antigens, and also an understanding of the mechanisms of immune regulation that limit effective immunotherapy. One challenge in tumor immunology is how to measure immune responses across the proteome.

Antibodies to tumor antigens can be detected in the blood of cancer patients, and can be used as biomarkers for early cancer detection. We use custom protein microarrays and bead-array assays to detect these antibodies, and have identified novel biomarkers for the detection of breast, ovarian, pancreatic, and human papillomavirus (HPV)-associated cancers. We have adapted custom protein microarrays for high-throughput multiplex ELISA assay for tumor antigen-specific antibodies and have developed secondary confirmatory assays for rapid antibody detection using plate-based, bead-based formats and point-of-care microfluidic formats.

## March 3 PROGRAM

**Would You Want a Self Driving Car**  
Hal Lind



Electric cars have been around long before gasoline cars were manufactured. The first one known was built in 1840, shortly after the invention of the electric motor. Before WW I they were the most popular kind of car, but faded away after the invention of the electric starter. With increasing concerns about pollution they were reconsidered in the 1980s. A race powered solely by sunshine demonstrated that more could be done with greatly reduced energy consumption. The fruits of that demonstration appeared first as hybrids, and now as fully electric cars.

Self driving cars are now the target of widespread development. The primary goal would be safer driving, as over 90% of accidents include an element of human error. There are many problems to solve, including non-technical ones. When such a car causes an accident, who is responsible? Opinions vary widely on when such cars will be available to the regular buyer.

See Hal's bio on the VEST website.

## President's Notes - Tod Hamilton Bio

Passenger Car Design Engineer, Development Engineer, Test Engineer, Chevrolet Engineering Passenger Car Test Engineer, Daimler Chrysler

A highly skilled, award winning engineer with a broad engineering background

Experienced in small business with assignments ranging from computer design to financial analysis

Highly experienced in the automotive industry with assignments ranging from basic power train design to electronic dealer service tools.

Highly skilled automotive test and development engineer

Education:

- University of Michigan, Ann Arbor, MI
- BSME, Automotive major
- General Motors Institute of Technology, Flint Michigan aka Kettering University
- Mechanical Engineering, M.E. Automotive

Work Experience:

- Provide Customer Engineering Support with GoPoint Technology Products
- Created new MS Access database for all AED packages
- Responsible for development and deployment of PC based serial tools
- Developed techniques to predict emissions and fuel economy from engine dynamometer emissions data
- Designed emission gas sampling systems using dilution and critical flow venturi techniques
- Developed diesel engine dynamometer emissions facilities, procedures, and GM test code techniques
- Certified for production build, heavy duty engine systems meeting emissions and fuel economy standards
- Directed basic engine design, induction system design, and development for production Leaning Tower of Piza vehicle, hot fueling handling and drivability development

Accomplishments:

- TV Emmy Awards presented for Innovative Technical Achievement in Motor Sports Television (1990, 1991)
- Leading Role and Session Chairman in ISATA (International Symposium on Automotive Technology and Automation)
- Patent # 3,864,064 Lock-up device for coupling the torque converter (Automatic Transmissions)
- SAE Paper #770075 – Engine control optimization for best fuel economy with emission constraints

## FUTURE MEETINGS

March 3, 2017

Title: Would You Want a Self Driving Car  
Speaker: Hal Lind

April 7, 2017

Title: The Softer Side of Robots and Their Wearable Applications  
Speaker: Panagiotis Polygerinos, PhD, ASU, Ira A. Fulton School of Engineering

## 2017 OFFICERS

President	Tod Hamilton	623-910-2042
Vice President	Leif Christensen	TBD
Secretary	Doris Palmer	623-815-8143
Treasurer	Marilyn Pettigrew	623-337-4163
Asst. Treas.	Darlene Hester	TBD
Asst. Treas.	Don Block	TBD

## COMMITTEE CHAIRPERSONS

Programs	Rick Cecil	360-402-1695
Membership	Philip Main	623-748-8222
<b>Reservations</b>	<b>Dave Whitehouse</b>	<b>623-544-0942</b>
Luncheons	Tod Hamilton	623-910-2042
Scholarship	Len Cohen	623-546-3741
Member at Large	Les Sherry	623-975-9081
Newsletter	Noelle Jobson	623-810-8717
Event Support	Hal Lind	623-546-6385
Event Audio	Richard Stout	623-815-0985
Event Computer	Richard Sarut	480-300-7251
Web Site	Dave Campbell	623-518-4871
Publicity	Lance Berglund	623-734-3737
Field Trips	Lanny Barness	623-546-3364
Hospitality	Doris Palmer	623-815-8143
Past President	Jackie Rice	TBD

## TREASURER'S REPORT February 2017

**General Fund Balance: \$5179.39**  
**Scholarship Fund: \$843.42**  
**January Membership Total: 142**  
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## LUNCHEON MENUS

**February 3: #1 Grilled Chicken Cordon Bleu or #2 Baked Cod.** Both entrées come with Salad, Balsamic Rice, Corn O'Brien, & Fudge Nut Brownie with whipped cream.

**March 3: #1 Salisbury Steak or #2 Orange Roughy.** Both entrées come with Salad, Lyonnaise potatoes, Green Bean Almondine, Apple Turnover with Ice Cream.

## RESERVATION POLICY

**The cost of the monthly luncheon is \$20 cash or check.**  
 The reservation deadline is 6PM Monday before the meeting.  
**Late reservations cannot be guaranteed the regular meal.**  
 Call Dave Whitehouse to cancel your reservation.  
 Note that the full cost of the luncheon will be charged for "no-shows" and cancellations after 5PM on Wednesday before the meeting.  
 Please have cash or make out your check in advance.  
**RESERVATIONS Dave Whitehouse (623) 544-0942**

## Driverless Cars

### Note from Newsletter Editor, Noelle Jobson

Greetings fellow VEST members! 2017 promises to be an exciting new year, both politically and technologically. We've seen and heard a lot of talk over the past year in the media regarding driverless cars. After reading an article in [Industry Week](#) divulging Elon Musk's opinion on the future of driverless roads, I decided to share my opinion on the state of the technology. After nearly two decades in the mission & safety critical RT autonomous and highly automated vehicle industry, I feel he is being short sighted and frankly arrogant about the technology capabilities today versus in 2019. While individual vehicles and command-monitor systems have been in place and understood for at least two decades, the capability is not a question. The cost of the sensors required to enable smart sensing and command response systems has made driverless vehicles economically feasible. Regardless, what is missing is the ability to fully determine the required integrity, reliability, and safety of these vehicles because the methodology for verifying and validating these key characteristics of successfully deployed or "roadworthy" vehicles does not yet exist. And the regulations and certification requirements that will need to be satisfied are still far from being determined. Cash heavy companies can throw as much money as they want at designing new vehicles and working backroom deals with politicians to roll them out, but they cannot let arrogance get in the way of the ultimate success of these vehicles. Human safety is the key consideration for successful, long term roll out of large scale mission and safety critical autonomy.

I welcome feedback, commentary and general discussion on this topic, and would be happy to provide an ongoing forum for discussion as part of the newsletter.

January speaker Patrick McDermott, CEM APS Community Affairs Manager with Tod Hamilton and Rick Cecil.



For more information on our speakers, please visit our website at [www.e2ngineersaz.com](http://www.e2ngineersaz.com)