

**Fall 2018 Mechanical Engineering Alumni Network (ME-AN)
Homecoming 2018 Car Show
October 5, 2018 - 3:30PM-5:30PM**

Vehicle highlights

2017 Tesla Model S, 75D – Evan Whitby, BME 1981, PhD 1990

This red Model S, 75D is a standard Tesla with a glass roof (Tesla likes glass in the roof), except the 75D means the battery size is 75 kwh (the largest Tesla battery is 100 kwh), and “D” means that it has dual electric motors, one front and one rear to make it all-wheel drive. The two motors provide about 500 HP and it is capable of 0-60 in about 4 seconds. (For Tesla this is not that remarkable, because the performance version of the Model S (i.e., P100D) does 0-60 in 2.5 seconds, and the new Roadster due out in 2020 does 0-60 in 1.9 seconds.)

2016 Audi S5 – Tom Dressel, BME 1968

2011 Corvette – Rob Bleckinger, BME 1969

This silver 436hp C6 coupe is Bob's eighth corvette and was the number one selling corvette of its time. Missing from the show is Bob's 2001 corvette, his particular favorite, which he uses during his months as a snowbird in Arizona.

2002 BMW 320si – Tom Jensen, BME 1973

1990 BMW 325i – Courtney Billing – CSE External Relations

1990 was near the end of the E30 generation of 3 series that became the global standard for performance sedans. BMW was out-engineering national rivals Audi and Porsche in this period, and the car's 220,000 miles on the original engine are proof.

1989 Jaguar XJS – Joelle Larson, CSE Director of Alumni Relations

1987 Ferrari Testarossa – Paul Plahn, BME 1968

This top of the line 5 liter 12 cylinder Ferrari has become a classic from the 80's. Paul has owned it for 18 years and he performs all minor and major maintenance.

1984 Ford C-800 Pump Firetruck, aka The Fireball – Jay Mega, CLA 1966

1995 Camaro Z28 – Clay McCarthy, ME Senior

This car has a completely upgraded suspension featuring many tubular components and polyurethane bushings, as well as slight power train and appearance modifications. The car competes in the MN Autosports Club's Autocross events as well as Brainerd International Raceway's Street Legal Drags.

1972 Honda Z600 – Roy Williams, BME 1972

1970 Ford Thunderbird – Chauncy Griggs, BME 1968

1969 Ford Shelby Mustang GT500 – Richard Palmer, BME 1966, MS 68

This is a rare and highly coveted mustang, with only 335 produced. At the height of the muscle car horsepower wars, Chrysler had the Hemi Cuda convertible, General Motors had the LS6 Chevelle convertible and the ultimate Ford was the Shelby convertible.

1969 Camaro Pace Car – Rhonda Zurn – CSE Director of Communications

1965 Kit Cobra - Eivind & Kathleen Stenersen, BME 1992/MS 1995 & BME 1991/MS 1993 respectively

1962 Chevy half-ton pickup – Dick DeSchane, BME 1959

1949 Chevrolet 3100 pickup – Thomas Kempf, BChemEng 1978/MS 1986

1920 Model T Ford Center Door – Jim Perry

Very rare car as most of the Model T's were scrapped for WW2 war efforts. The car is all original with a 20 HP engine with a planetary gear transmission. Throttle is located on the steering column along with spark advance. Have owned this car for 11 years now. We are the third owner of this car. 2nd Owner had the car up on blocks for 50 years.

Plus!

2017 UMN Solar Vehicle - Eos II

The Solar Vehicle Project (SVP) is a student run organization which designs and builds solar-electric vehicles to race in solar challenges around the world. Their goal is to create better engineers, business people, and leaders while innovating solar vehicle technology. Unveiled in July 2017, the Eos II, UMN's 13th solar vehicle, is a cruiser class vehicle. The Eos II placed 5th in the 2017 World Solar Challenge, 1st place in the 2017 Formula Sun Grand Prix, and 2nd in the 2018 American Solar Challenge this past July, making it the #1 cruiser class solar car team in North America. The team is currently designing their next vehicle.

Formula SAE Race Car

Each year the University of Minnesota Student Chapter of the Society of Automotive Engineers (SAE) designs and builds a vehicle to compete in the global Formula SAE Series. The competition goal is to design, manufacture, market, and race an open-wheel, open-cockpit, and single-seat vehicle marketable to the weekend autocrosser.

Autonomous Snowplow Robot – UMN Student Team

The ION Autonomous Snowplow Competition objective is to build a commercially viable and completely autonomous robot to remove snow from 2 courses. One (1mx10m) simulates a sidewalk, and a second (3mx10m) simulates a driveway. There are some stationary obstacles (poles) and a moving obstacle (a stop sign) that the robot must avoid in order to not lose points. The competition is mainly graded on the amount of snow removed, amount of time the robot took, and the final location of the robot.

UMN team's robot, the *Snow Squirrel*, is a tracked robot featuring four 1 hp motors, 4 deep cycle batteries, and a SICK Lidar unit for navigation. The robot weighs 525 pounds and makes 760 ft-lbs of torque. The robot has competed for 2 years, receiving 4th place the first time out, and scoring the U its first title this past season. The competition is judged by members of the Institute of Navigation who work at local companies and local academic institutions. Other competitors often include NDSU, Michigan, Iowa State, Case Western Reserve, Dunwoody, and St. Thomas.

Motorcycles – Jim Rutzick, BME 1966

- Late sixties Ducati Grand Pre Racer
- Suzuki Hayabusa Land Speed Racer, 1350cc. Raced at Bonneville this summer. Top speed so far is 215.92, just 4mph short of the current class record. Photos taken at Utah's El Mirage, the dry lakebed.

Polaris Slingshot

The Slingshot is a three wheeled motorcycle, is manufactured by Polaris Industries. The Slingshot weighs 1,700 lbs and is powered by a 2.4 liter inline four engine. It produces 173 hp at 6200 rpm and 166 lb-ft of torque 4700 rpm. This engine was formerly used by GM in the Pontiac Solstice and Saturn Sky sports cars. It has a tilt-adjustable steering wheel, side-by-side bucket seats and does not lean. It has a double-wishbone front suspension with a sway bar to control the front end.

Bicycles - Patrick Geraghty – BME 1988

1892 The Express - This bicycle is an example of a hard tired safety. These bicycles were the transition between the ordinaries and the pneumatic tired safeties. The use of a chain drive and different sprocket sizes facilitated wheels of about the same diameter. They were only made for a few years as the pneumatic tires took over about the mid 1890's and hard tires became obsolete. This bicycle was built by the Mecham Arms Co. of St. Louis.

1952 Monark Super Deluxe - A very beautiful bicycle that continues the Art Deco stylings of the 1950 Super Deluxe, but has a few details that set it apart. The fork here is a dual-spring model rather than a single-spring, knee-action fork and both the tank and seat feature chrome pipe accents.

1986 DeRosa Moser TT commemorative - Francesco Moser set the 1 hr. record in 1985 at 51.151 km. This commemorative custom built time trial bicycle was made to celebrate that record. It has aerodynamic Columbus SLX tubing, Campagnolo C Record components and Ambrosio disk wheels.

Unique three-wheeled vehicles – William Eggert

Human-powered mobile elliptical trainer - An arm-and-leg powered elliptical trainer that actually goes somewhere —the designer of this vehicle is a former long distance runner who was looking for a way to get a vigorous workout that didn't require bone-jarring impact with pavement or being confined to an exercise machine in a health club. One of the main design challenges was how the rider should steer the vehicle, given that his or her hands would be occupied moving the arm levers, and then how to design a mechanical linkage from the rider's hands down to the front-steered wheels. His solution? Please come to the October 5th show to find out!

Powered by the COLD - This vehicle was built to demonstrate the feasibility of powering an engine that runs off of a source of coldness, e.g., dry ice, liquid nitrogen, or even ice cubes and salt. How? (Hint: There are neither dielectrics nor thermocouples involved.) Please come and find out!

Come and meet some of the folks from Macchina (www.macchina.cc)

Macchina started as a group of friends with experience in consumer electronics making hardware to fit the needs of our own automotive projects. Over time they realized many people--ranging from hobbyists to prototyping labs and even entrepreneurs--could benefit from the work we are doing. Now they are a large team making hardware for everyone's projects. And they aspire to do more than simply manufacture and sell automotive hardware and tools. Their website serves as a hub for learning and dissecting everything about cars and anything else that comes up. They want people to get curious about how their car functions. Many of the people on their team got into STEM fields because of their childhood fascination with cars and we want to foster that curiosity to produce the mechanics and engineers of tomorrow.