

Irene Hu

Week 51

- 901805 - Coastal Biogeochemical Sensing Program
 - Forked mCAP to LionCAP in OrCAD and made changes
- 901904 - Deep-Sea Coral Community Observatory
 - Working on junction box board
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office
 - Dec 25-29: Holiday

Week 50

- 901805 - Coastal Biogeochemical Sensing Program
 - Got mcaps and nanofet modified for n channel
- 901904 - Deep-Sea Coral Community Observatory
 - Laid out strobe board
 - Started on remaining boards
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
 - Rec com project update
 - Helped spot for drone project
- Out of Office
 - Dec 25-29: Holiday

Week 49

- 901805 - Coastal Biogeochemical Sensing Program
 - Developed Nanofet QA procedure and QA'ed 8 new nanofets
 - One nanofet (delivered weeks later) has 240 uA bias current draw instead of 216 uA like everyone else; "cleaning" board made it worse, rigorous cleaning brought it back down to 240 uA. Will continue troubleshooting
- 901904 - Deep-Sea Coral Community Observatory
 - Working on Strobe board in KiCAD
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office
 - Dec 25-29: Holiday

Week 48

- 901805 - Coastal Biogeochemical Sensing Program
 - Getting together QA procedure for nanofets
 - Trying to get stuff back from KAUST
 - Interviews for new lab tech
- 901904 - Deep-Sea Coral Community Observatory
 - Drawings submitted for ROV housings
- 902305 - Event Detection using the Sedimentation Event Sensor

- Overhead
 - Rec comm budget
- Out of Office
 - Nov 21-27: Thanksgiving / bereavement

Week 47

- 901805 - Coastal Biogeochemical Sensing Program,
- 901904 - Deep-Sea Coral Community Observatory
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office
 - Nov 15: out
 - Nov 21-22: Thanksgiving vacation

Week 46

- 901805 - Coastal Biogeochemical Sensing Program,
 - Hiring committee for new lab tech
 - Housekeeping on new nanofets
- 901904 - Deep-Sea Coral Community Observatory
 - Edited drawings for ROV housings, talked to Ray about fab
 - Discussed electronics with Paul, started thinking about LED board
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
 - Rec com: pancake breakfast
- Out of Office
 - Nov 15: out
 - Nov 21-22: Thanksgiving vacation

Week 45

- 901805 - Coastal Biogeochemical Sensing Program
 - Troubleshoot mfets, missing 5 + need to send all back to rotate RS232 transceiver
 - Hiring for new tech
 - Convo w/ KAUST
- 901904 - Deep-Sea Coral Community Observatory
 - Getting started on boards
 - Meeting w/ Paul
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office
 - Nov 21-22: Thanksgiving vacation

Week 44

- 901805 - Coastal Biogeochemical Sensing Program
 - Troubleshoot low iDS issues for LioniX isfet
 - Circuit worked out for n-channel nanofet
 - Coordinating next steps for recently arrived nanofet, mfet, mcap boards
- 901904 - Deep-Sea Coral Community Observatory
 - Set up tub in seawater lab and ran some imaging tests
 - Design review and meeting

- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
 - Rec comm meeting
- Out of Office

Week 43

- 901805 - Coastal Biogeochemical Sensing Program
 - KAUST trip postponed to TBD date due to regional instability
 - Got mcap board into EDM (with James's help), made rev D-1-0 with updates for n-channel LioniX isfet
- 901904 - Deep-Sea Coral Community Observatory
 - Imaged some feathers and leaves, refined image processing workflow
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
 - Helping George with SINKER cables
 - Helped plan Bike to Work Oct 24
- Out of Office

Week 42

- 901805 - Coastal Biogeochemical Sensing Program
 - Shipment finally sent off to KAUST!
 - Working through eddy covariance processing code
 - Cable diagrams for BEAMS and Nanofet
- 901904 - Deep-Sea Coral Community Observatory
 - Prep for design review
 - Refined MATLAB code for processing images
 - Obtained a giant tub
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
 - Helping George with SINKER cables - Orin, Pi, and other cables
- Out of Office
 - Oct 17: car issues
 - Oct 18: at home in bed due to COVID vaccine

Week 41

- 901805 - Coastal Biogeochemical Sensing Program
- 901904 - Deep-Sea Coral Community Observatory
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office

Week 40

- 901805 - Coastal Biogeochemical Sensing Program
 - ADV harness rewired; new cables received, wired, tested, potted
 - Packing for KAUST, paperwork, and last minute parts mods
 - Nanofet looks good in wet lab with second ISFET assembly
- 901904 - Deep-Sea Coral Community Observatory
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
 - SINKER cables: online sleuthing / discuss w/ George to figure out wiring for Orin cables

- DEI focus group
- Out of Office

Week 39

- 901805 - Coastal Biogeochemical Sensing Program
 - Packing for KAUST trip and last minute parts modifications
 - Figured out how to rewire ADV harness for two-connector endbell; tools, pins, etc on order
 - Chat w/ Peter Berg
- 901904 - Deep-Sea Coral Community Observatory
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
 - Rec comm BBQ
- Out of Office

Week 38

- 901805 - Coastal Biogeochemical Sensing Program
 - Reassembled seaphox with aluminum fasteners
 - Emergency packing and paperwork for KAUST trip
 - Planning out second AEC setup
 - Keeping an eye on nanofet tests- nano-dfet very noisy in seawater lab (bubble?), less noisy in a bucket in lab; nanofet+DSD had low noise in lab setup; nano-dfet is back to seawater lab to repeat test
- 901904 - Deep-Sea Coral Community Observatory
 - Glued velcro to Teflon piece
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
 - Helping George with SINKER cable diagrams
 - Rec com meeting; chasing down strange budget entries
 - Sept 20: PCB West convention w/ Jose and James
- Out of Office

Week 37

- 901805 - Coastal Biogeochemical Sensing Program
 - Tank dunk test for AEC instrument
 - Visited Stanford to borrow ADV/Rinko; tested ADV
 - Tracking down updated Vector firmware
 - Massive scramble to order new 2-connector endbell for Vector; mapped out new cables, trying to expedite order
 - Helping w/ job description for new tech
- 901904 - Deep-Sea Coral Community Observatory
 - Played with ImageJ
 - Convo w/ Paul and Steve re: next steps; ordered some Teflon
- 902305 - Event Detection using the Sedimentation Event Sensor
 - Read Crissy's abstract
- Overhead
 - Engineering meeting
 - Helping George with SINKER cables
 - Completed DEI survey
- Out of Office
 - Sept 4-8: vacation

Week 36

- 901805 - Coastal Biogeochemical Sensing Program
- 901904 - Deep-Sea Coral Community Observatory
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office
 - Sept 4-8: vacation

Week 35

- 901805 - Coastal Biogeochemical Sensing Program
 - Finishing nanoB current tests; titrations look good
 - Testing nanoB modifications to reduce noise
 - Prepping AEC instrument for tank dunk; convo with Stanford team; planning for Saudi Arabia
- 901904 - Deep-Sea Coral Community Observatory
 - Planning meeting
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
 - Helping George with SINKER cables - looked over materials
 - Rec comm meeting
- Out of Office
 - Sept 4-8: vacation

Week 34

- 901805 - Coastal Biogeochemical Sensing Program
 - Nanofet rB tests of bias and main power/current consumption using Yokogawa
 - Initial analyses of Nanofet noise performance, waiting for titration tests
 - Prepping AEC instrument for tank dunk
- 901904 - Deep-Sea Coral Community Observatory
 - Timed operations in detail to understand where lags are/how to speed up
 - Restructured Python code, modified firmware and camera settings to cut small delays
- 902305 - Event Detection using the Sedimentation Event Sensor
 - Conversation with McLane; will likely use Gen3 controller to trigger a trap
- Overhead
 - Put together reccom budget presentation
- Out of Office

Week 33

- 901805 - Coastal Biogeochemical Sensing Program
- 901904 - Deep-Sea Coral Community Observatory
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office

Week 32

- 901805 - Coastal Biogeochemical Sensing Program
- 901904 - Deep-Sea Coral Community Observatory
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead

- Out of Office

Week 31

- 901805 - Coastal Biogeochemical Sensing Program
 - Compiled knowledge/understanding of ISFET chemistry and circuitry
- 901904 - Deep-Sea Coral Community Observatory
 - Designed cradle for multispec, sent out for 3D printing
 - Ordered parts to set up calibration / testing jig
- 902305 - Event Detection using the Sedimentation Event Sensor
 - Planning meeting
- Overhead
- Out of Office

Week 30

- 901805 - Coastal Biogeochemical Sensing Program
 - Nanofet rB sent out for fab
 - Laid out and sent out battery adaptor board
 - Looked at some data from Wirewalker Humboldt, and helped Jacob troubleshoot their Durafet
 - Wrote some EC data processing code, planning how to deploy EC instrument
- 901904 - Deep-Sea Coral Community Observatory
 - Finished building multispec instrument with nylon screws. Confirmed to work
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office

Week 29

- 901805 - Coastal Biogeochemical Sensing Program
 - Completed EC mockup build
 - Worked w/ Jose to rewire some connections in nanofet for better routing
 - Making Tadiran battery adaptor board
 - Wirewalker/Humboldt meeting
- 901904 - Deep-Sea Coral Community Observatory
 - Finished building multispec lab unit after receiving parts; it no longer works and draws too much current
 - Opened unit back up and traced problem to screws shorting two ground planes. Ordered nylon screws.
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office

Week 28

- 901805 - Coastal Biogeochemical Sensing Program
 - Continuing to build up EC instrument, modified some parts as necessary
 - For nanofet, lots of reading on guard rings, low current measurements, reference electrodes; looked at a bunch of op amps and decided to continue with current selection for now (minor modifications to help with routing)
 - Reorganized nanofet schematic and fixed references
 - Li-SW first contact
- 901904 - Deep-Sea Coral Community Observatory
 - Ordered some parts and began finishing Paul's build
- 902305 - Event Detection using the Sedimentation Event Sensor

- Overhead
- Out of Office

Week 27

- 901805 - Coastal Biogeochemical Sensing Program
 - Continue building up EC system and fixing parts as problems arise, update drawings as needed
- 901904 - Deep-Sea Coral Community Observatory
 - Wrote multithreading version of code- works better than ever
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office
 - June 19-23: Vacation

Week 26

- 901805 - Coastal Biogeochemical Sensing Program
 - Working w/ Jon and Jose to design/integrate battery clips for nanofet board. Battery will hover above circuit to save space
 - Mods to circuitry to accommodate “internal” reference as default
- 901904 - Deep-Sea Coral Community Observatory
 - Camera crashes traced to USB cable - Paul has now rewired and housed system
 - Refinements to code for resizing image, saving, etc
 - After discussing w/ Paul, writing second version of Python code using multithreading with producer/consumer architecture
- 902305 - Event Detection using the Sedimentation Event Sensor
 - Planning meeting
- Overhead
 - Made some pies after work
- Out of Office
 - June 19-23: Vacation

Week 25

- 901805 - Coastal Biogeochemical Sensing Program
- 901904 - Deep-Sea Coral Community Observatory
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office
 - June 19-23: Vacation

Week 24

- 901805 - Coastal Biogeochemical Sensing Program
 - Troubleshoot Nano4 (solder blob)
 - Nano3 modified to tie buffer shdn to RES; seems to work. ~40 uA parasitic draw thru relay when HIB doesn't properly go low is still a problem, but tabled for now
 - Final mods to nanofet revB and discussed w/ Jose for layout
- 901904 - Deep-Sea Coral Community Observatory
 - Arbitrary pauses in camera's “continuous” mode traced to using synchronous instead of asynchronous capture; rewrote all code to use asynchronous
 - Toggle between streaming (need to resize) and saving images from 8 LEDs - works (w/ workaround for crash when try to close streaming window)

- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office
 - June 19-23: Vacation

Week 23

- 901805 - Coastal Biogeochemical Sensing Program
 - Continued testing of HIB solution for buffer shutdown: incorrect pH voltages traced to software
 - HIB pin does not go low when power is arbitrarily cut, despite implications in docu. On further probing and googling, it never has and probably never will. Working w/ Thom + consulted Scott, Alana, etc to brainstorm alternate solutions
 - EC parts sent to MTechs to fix.
- 901904 - Deep-Sea Coral Community Observatory
 - Working on continuous / streaming mode to help with setup and focus before taking pictures with all LEDs
 - Signals are not behaving as expected, with arbitrary pauses that slow down refresh rate; exchanging emails with AlliedVision support team
 - Draft Python code to toggle between streaming mode and 8-shot mode
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
 - Rec com meeting
- Out of Office
 - 6/7/23: "emergency plumbing issues" (gross)
 - Vacation in June TBD

Week 22

- 901805 - Coastal Biogeochemical Sensing Program
 - Fixed broken Nanofet2 (replaced microprocessor + reprogrammed)
 - Continued testing of HIB solution for buffer shutdown: Nano2 submitted to replace ADC
- 901904 - Deep-Sea Coral Community Observatory
 - Setting up "streaming" version of camera as controlled by trigger pin on LED ring
 - Read through camera manuals for timing information, will try FrameTriggerWait for controlling frame rate
 - Code written and tested for LED ring
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office

Week 21

- 901805 - Coastal Biogeochemical Sensing Program
 - Nanofet issue with bias battery powering circuit during sleep: discussed w/ Scott to ID/understand issue, testing fix involving HIB pin (may have new issues: current draw too low, Durafet voltages are off)
 - Troubleshooting nanofet2 after accidentally shorting battery power to some components
 - Continuing assembly of eddy covariance instrument, and fixing small problems with machined parts
 - Weekly meetings
- 901904 - Deep-Sea Coral Community Observatory
 - Set up LED ring to flash LED/camera pin on commands
 - Set up camera to trigger on pulse, and tested w/ pulse gen
 - Python script to communicate w/ LED ring, and coordinate, read, and display matching camera image
 - Met w/ Paul to discuss next steps

- 902305 - Event Detection using the Sedimentation Event Sensor
 - Biweekly meeting
- Overhead
 - Planned/led Bike to Work on 5/18/23
 - Substitute interview for prototype machinist
- Out of Office
 - May 25-26 reunions

Week 20

- 901805 - Coastal Biogeochemical Sensing Program
 - Created (from old B draft) nanofet A-1-1 schematic with small changes, and sent to Jose's group for assembly of 2 more nanofets
 - Created new nanofet B schematic to be a multipurpose small controller with integrated battery; changes ongoing pending battery decisions and parts arrival/evaluation
 - Added missing resistors to existing nano1 and nano2; nano1 to Joe for titration test
 - Borrowed Yokogawa from Paul M to measure bias battery current consumption. Bias battery appears to be parasitically powering other parts of circuit after it falls asleep
- 901904 - Deep-Sea Coral Community Observatory
 - Code written for comms to LED ring
 - Replaced resistors to increase voltage to LED current source regulator; troubleshoot and fixed problem with digital pot; characterized new LED I-V points at a few pot settings and measurement durations
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
 - Rec comm meeting, and planning Bike to Work
- Out of Office
 - May 25-26 reunions

Week 19

- 901805 - Coastal Biogeochemical Sensing Program
 - Review nanofet circuit, discuss w/ Scott; some parts missing
 - Meeting to discuss updates and timelines
 - Weekly meetings
- 901904 - Deep-Sea Coral Community Observatory
- 902305 - Event Detection using the Sedimentation Event Sensor
 - Deployment at MARS 5/8/23
- Overhead
 - OrCAD tutorial (online + help from Scott and Jose)
- Out of Office
 - May 25-26 reunions

Week 18

- 901805 - Coastal Biogeochemical Sensing Program
 - Cut out channel for Rinko in flowcell spacer using jigsaw / file
 - Started untangling mcap circuit
- 901904 - Deep-Sea Coral Community Observatory
 - Read lots of camera manuals; mapped out a workflow for camera-cpu-LED ring
 - Simple Python program to synchronously stream camera frames w/ varying exposure
 - Started on LEDring code to interact with camera/cpu
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead

- Python tutorial
- Out of Office
 - 4/28/23: cycling trip
 - 5/8/23: SES deployment at MARS

Week 17

- 901805 - Coastal Biogeochemical Sensing Program
 - Started assembling new parts for ECV system; will need to modify flowcell spacer
 - Attended Carbon Lab weekly meeting
- 901904 - Deep-Sea Coral Community Observatory
 - MATLAB model of LED outputs to compare relative intensity factoring in LED output curves, attenuation of water, and QE of detector; 940nm LED will need 100-1000X longer exposure than others, depending on distance to object
 - Watched Paul configure a local user and python environment on laptop Harlequin
 - Watched Paul set up & interface with camera over Vimba Viewer and python (some connections issues, some issues possibly Windows related)
- 902305 - Event Detection using the Sedimentation Event Sensor
 - Helped troubleshoot Benthos modem comm issue (pins loose in internal connector)
- Overhead
 - Rec comm budget, presentation, meeting
 - Learning python and trying to set up on laptop Mushu
- Out of Office
 - 4/28/23

Week 16

- 901805 - Coastal Biogeochemical Sensing Program
 - Helped with analyzing/interpreting data from latest nanofet test
- 901904 - Deep-Sea Coral Community Observatory
 - Implemented all-LED light source + handed to Francisco
 - Measured I-V of LEDs, ordered resistors to modify input V to current source
- 902305 - Event Detection using the Sedimentation Event Sensor
 - Troubleshooting SES (eg issues with power circuitry) and reassembled
 - Test tank test with MARS wet node simulator
- Overhead
 - LASS design review
- Out of Office
 - 4/28/23

Week 15

- 901805 - Coastal Biogeochemical Sensing Program
- 901904 - Deep-Sea Coral Community Observatory
- 902305 - Event Detection using the Sedimentation Event Sensor
- Overhead
- Out of Office