2022 CALTECH/JPL/ART CENTER

DATA TO DISCOVERY VISUALIZATION SUMMER INTERNSHIP PROGRAM
FINAL PRESENTATIONS

THURSDAY AUGUST 18th 2022 | 10AM-12PM PDT | ZOOM bit.ly/d2d-finalpresentations-22

VECTOR

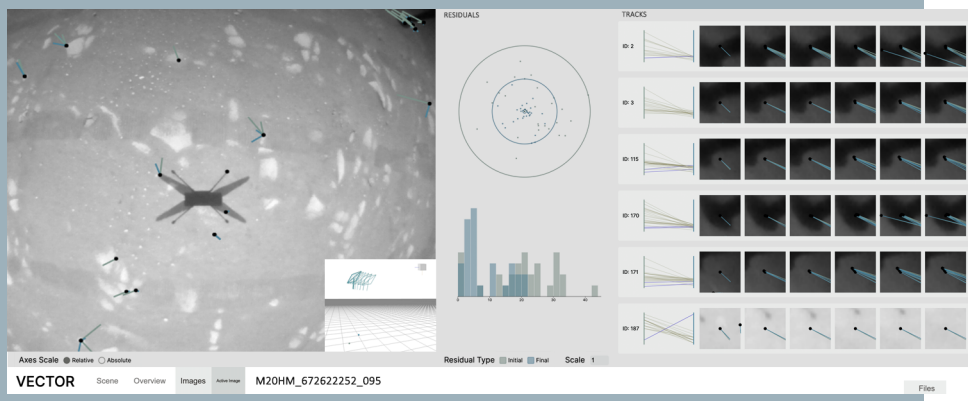
PI: Mauricio HESS-FLORES | JPL

[PROBLEM]

Reconstructing 3D mesh from image mosaics is challenging, especially when scientists are globally optimizing camera positions and 3D feature locations from noisy initial states using a highly non-linear cost function.

[SOLUTION]

We have designed and developed VECTOR, a visualization tool that allows for data exploration and insight into global optimization variables. Our tool allows scientists to improve the accuracy of the 3-dimensional mesh that is algorithmically derived from 2-dimensional imaging.



RAFT

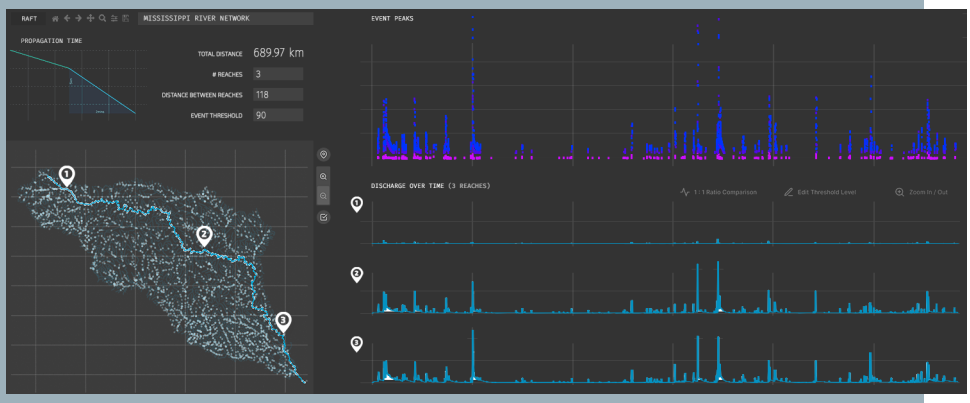
PI: Cedric DAVID | JPL

[PROBLEM]

Understanding how water flows across rivers systems is limited. Scientists do not have aggregate comparison tools to extrapolate river water behavior across observation points & time.

[SOLUTION]

We present RAFT, a tool built to better understand and communicate how surface water propagates through space and time within rivers. RAFT visualizes distance and time of peaks in water discharge, better contextualizing events as they propagate downstream. Our tool allows hydrologists to examine celerity, a measurement of how water events propagate across a river, and varies over time and space.



GRIT

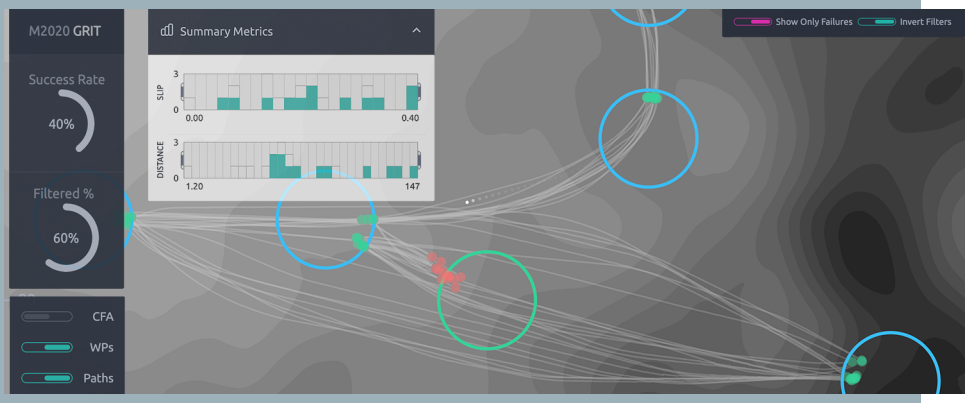
PI: Kris WEHAGE | JPL

[PROBLEM]

Mars Rover Planners are studying the potential for AutoNav Monte Carlo simulations to help them assess the risks of extended automatic navigation over challenging topography.

[SOLUTION]

We present GRIT, a tool for Rover planners to visualize the results of a large set of Monte Carlo path simulations, interact and filter the simulations enabling in depth investigation of the probability of runs incurring unnecessary costs. Further capabilities to investigate failed mission simulations can lead to better intuition of the overall terrain and can even foment the marking of explicit keep-out zones to help lower probability of rover mission failure.



INTERNS RACQUEL FYGENSON | MATT HONG | KAZI JAWAD | ISABEL LI | ALEX LIM

PROGRAM ORGANIZERS JPL| SCOTT DAVIDOFF ART CENTER| MAGGIE HENDRIE CALTECH+ARTCENTER| SANTIAGO LOMBEYDA CALTECH| HILLARY MUSHKIN

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