**V3.0 proposed features**

Post-processing analysis (Jared)

Implement physical units for flux and add photon noise (Rus and/or Jared)

Add second star (Jared)

Better OOP organization (Rus and Steve)

More realistic tip/tilt vs. time curves

**V2.0 (Rus)**

PIAA coronagraph implemented (Exo-C design)

“Ideal” coronagraph fixed so it works with planets now

Jared’s V1.1 features folded in

**V1.1 (Jared)**

Multiple sources (star and planet)

Planet position as a function of time

**V1.0 features**

Created by: Rus Belikov

**Payload (main.m)**

* Only on-axis star (no companion)
* Star is a monochromatic point source
* No planets or disk
* No LO or wavefront control – assume aberrations delivering 1e-8 raw speckles
* Assume (for now) some arbitrary post-LO aberrations, and only tip/tilt
* 1mHz iterations (ignore any disturbances faster than that)
* Main goal: set up a minimally functioning simulator asap on which we can add more detail and sophistication in a modular fashion

**Astrophysics (astrophysics\_initialize.m)**

* Model only the on-axis star, as an ideal on-axis plane wave
* Trivial – function outputting a structure containing (initializing) x, y, lambda, E\_in, independent of time

**Disturbances (disturbance\_initialize.m)**

* Use only tip/tilt modes
* 1mHz random white noise

**Optics**

* Optical end-to-end simulation
  + only pupil and image plane
  + Assume ideal coronagraph, i.e. on-axis mode gets perfectly suppressed, all other orthogonal modes are unaffected
    - Implementation:
      * - 1} where represents static and dynamic errors and “FT” is Fraunhofer propagation. The coronagraph is implemented by “-1”
* random static surface figure on each optic
* Apply disturbances

**Science detector**

* Just magnitude squared of field