Nikolai Thesis

* Control block diagram (p. 37)
* Algorithms
  + Halley’s root finder – 22us
  + Kinematic lookup table – 9us
* Desired control loop frequency – 1kHz
* Errors
  + Hall sensor
  + Harmonic drive backlash ~0.1 degree
  + Hand measurement
  + Joint looseness
* Optimizations (4.7.3) (5.9.1)
* Timing (p. 62)
* RR implementation/equations (4.5.3.2)
* Instability solution with 2nd encoder (4.5.5)
* Milling configuration/angle of attach (p. 92)

Implants

* Reference to TKA and UKA techniques with exposures of 25-30 cm and 8-10cm (p. 90) (Fig - 5.3)
* Nikolai’s design works best when positioned at centre of curvature of surface, but specifies a range of locations where the device can be positioned successfully
* Testing used shapes to approximate implant surface:
  + tri-planar surface (left plane: slope = 1, y-intercept = 100mm, middle plane: slope = 0, y-intercept = 74mm, right plane, slope = -1, y-intercept = 100mm) is a simplified version of the five-cut pattern usually used for femoral implants. (p. 39)
* Common UKA implant types are shown in Appendix D (WE DON’T HAVE!) (p. 82)