15-664 MiniProject 1: IK Solver

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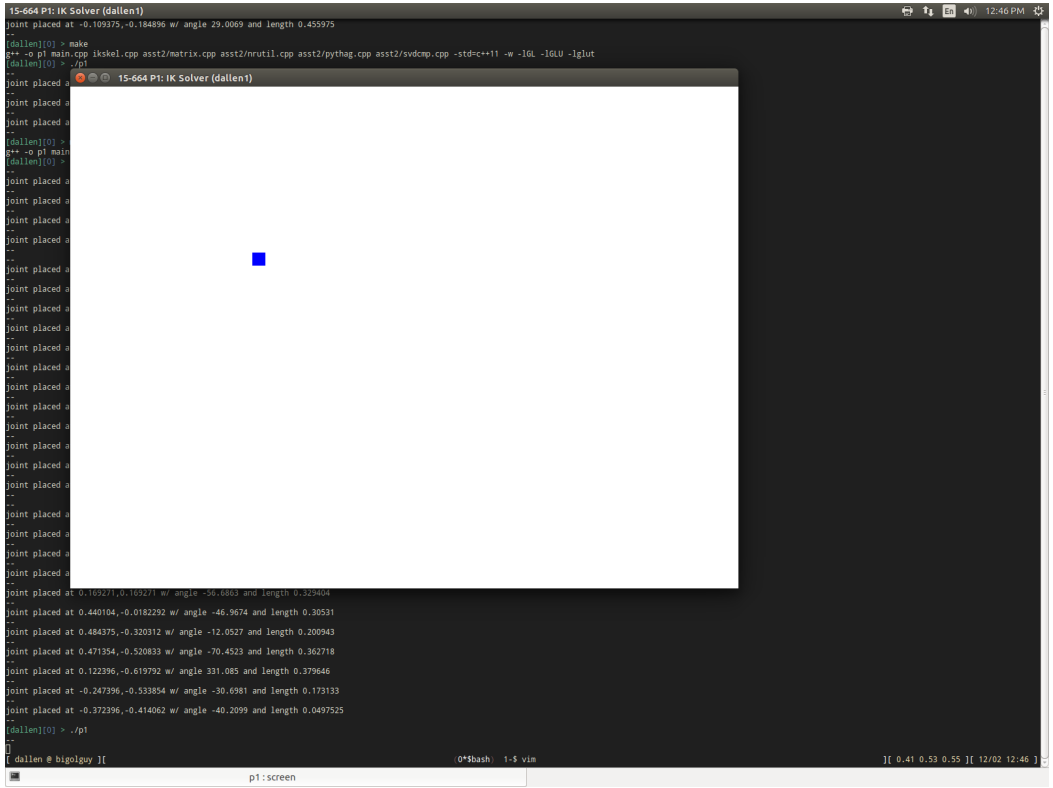
Goals

- Allow the user to draw out skeletons with a fixed root
- Solve the inverse kinematics problem given a target for the end effector
  - Cyclic Coordinate Descent
  - Jacobian Transpose
  - Jacobian Pseudoinverse

Drawing Mode



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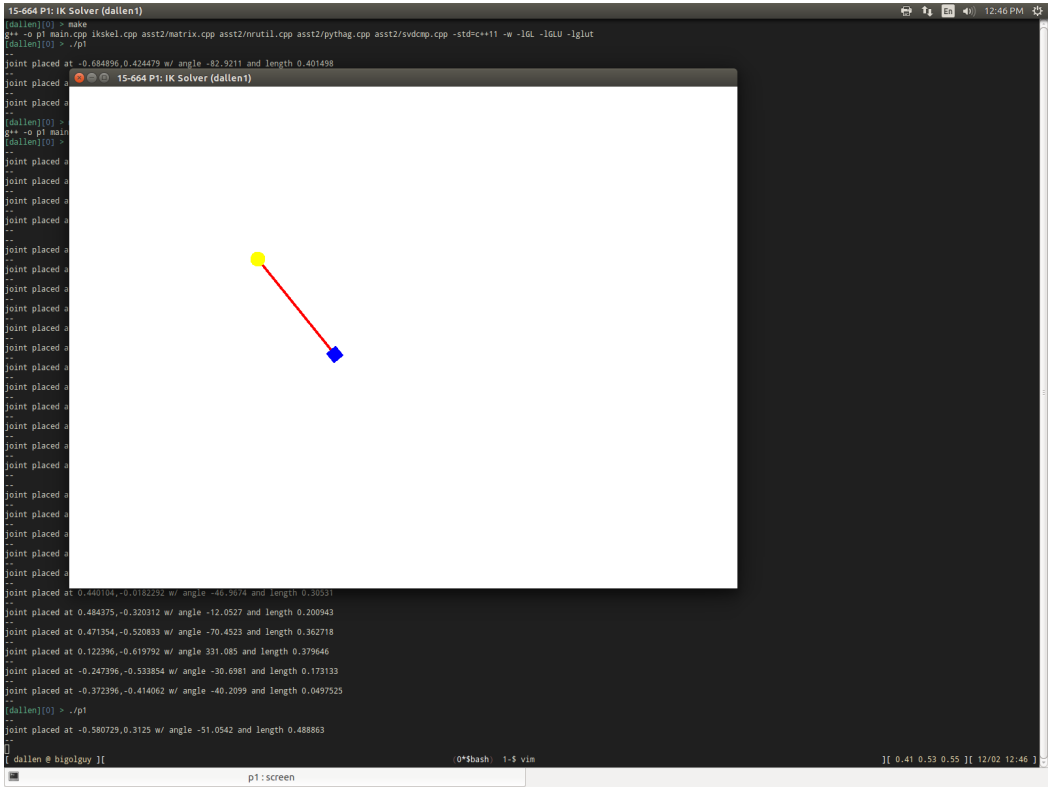

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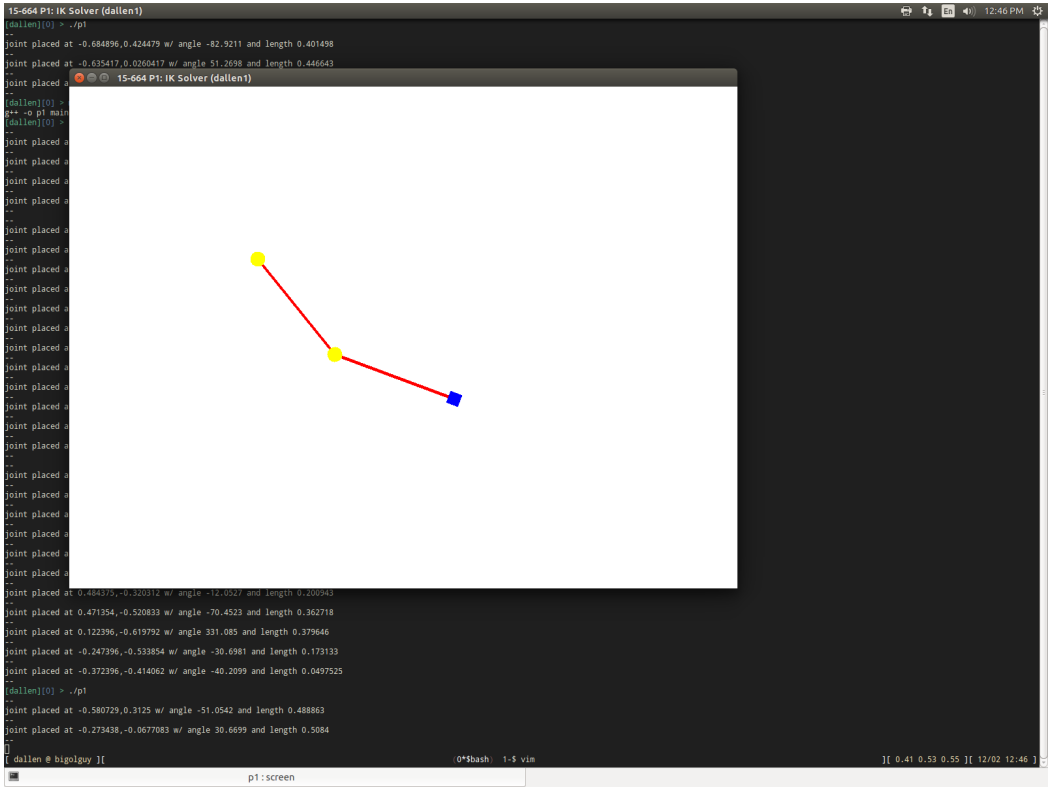

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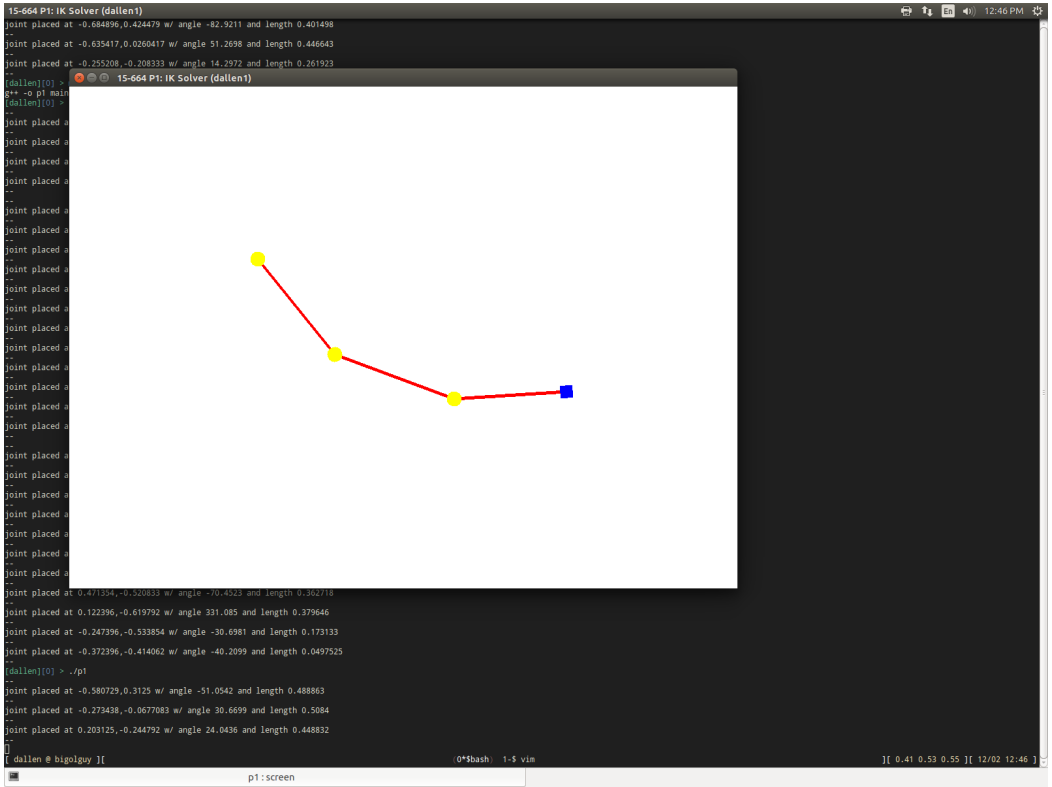
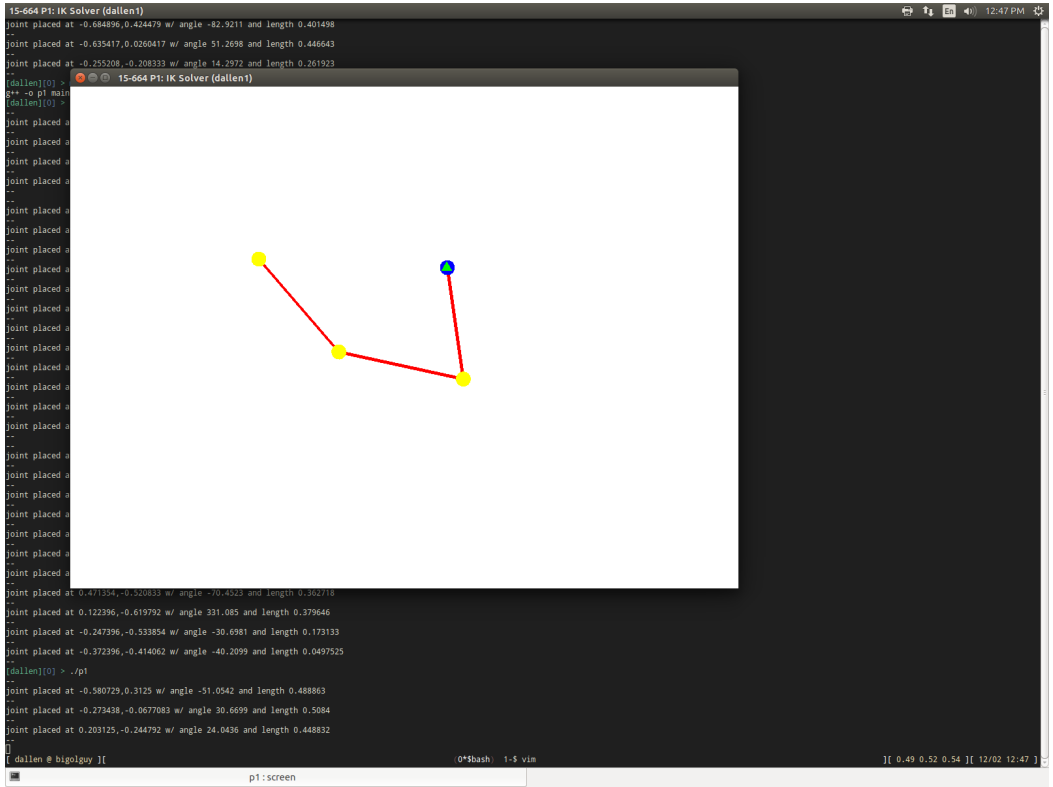
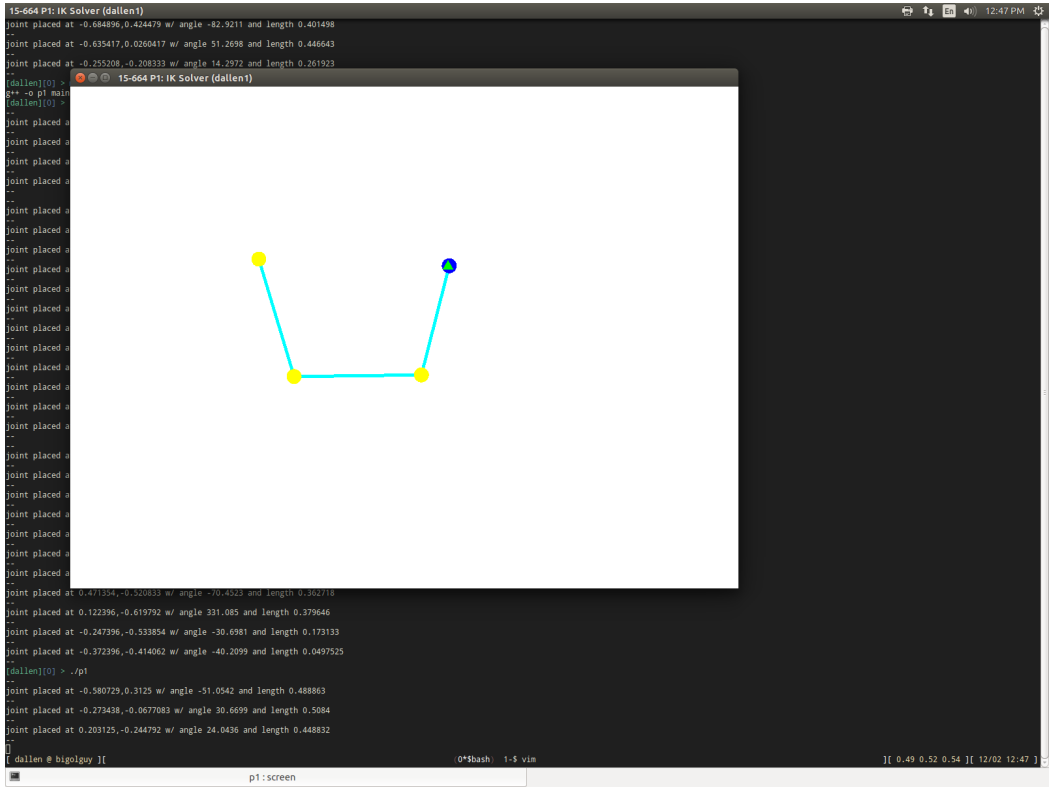


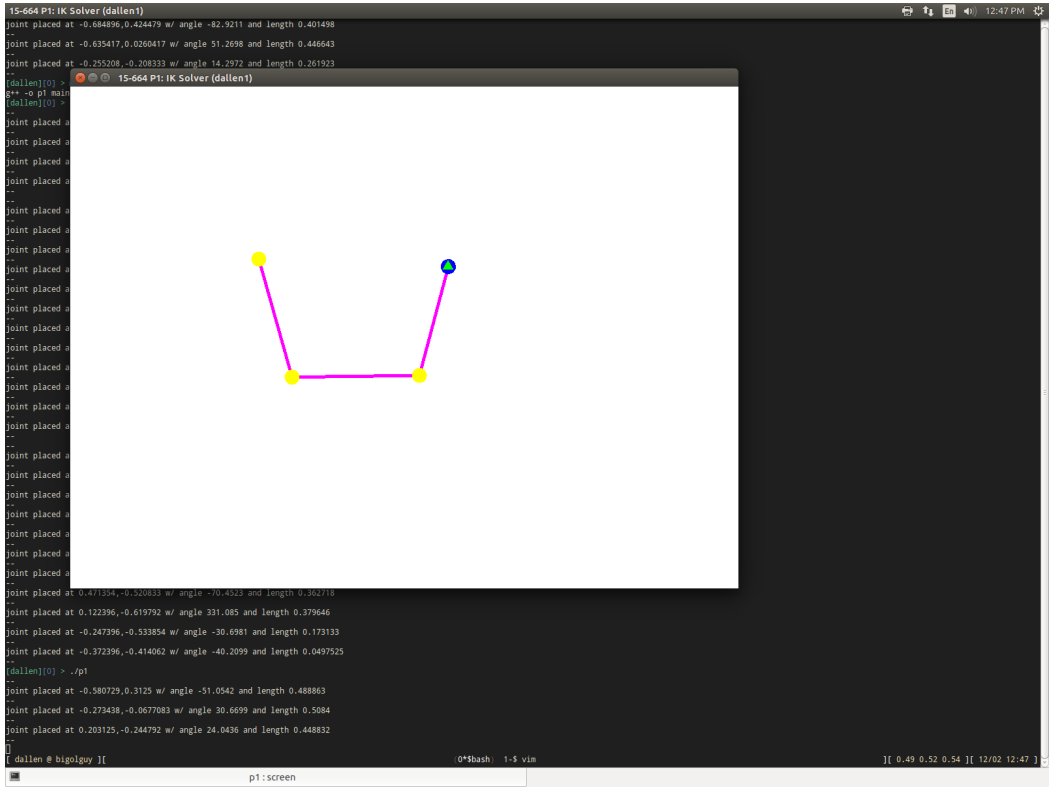
IK Solver Mode (CCD)



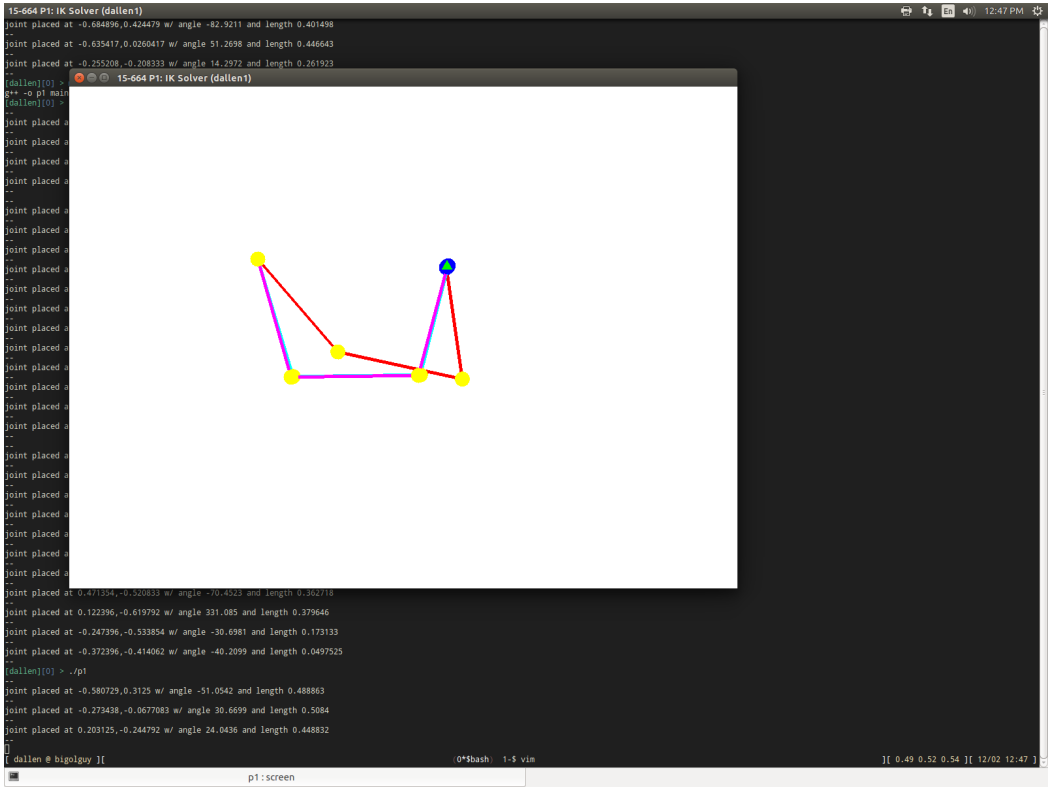
IK Solver Mode (Jac. Transpose)



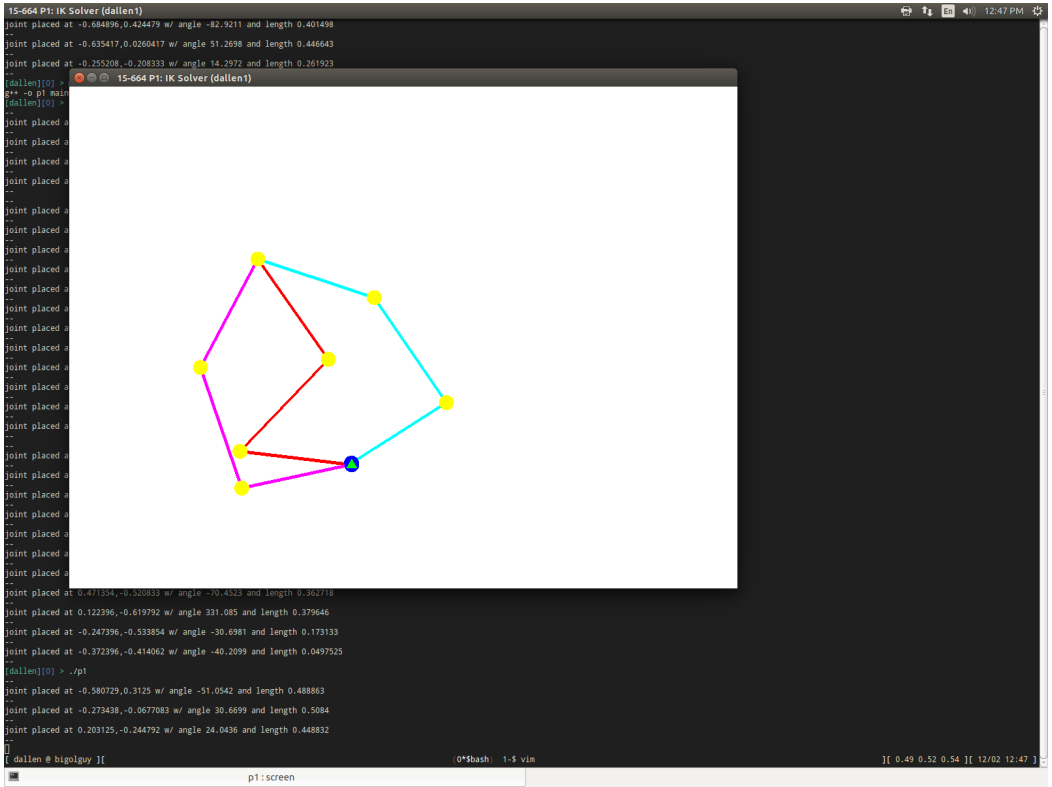
IK Solver Mode (Jac. Pseudoinverse)



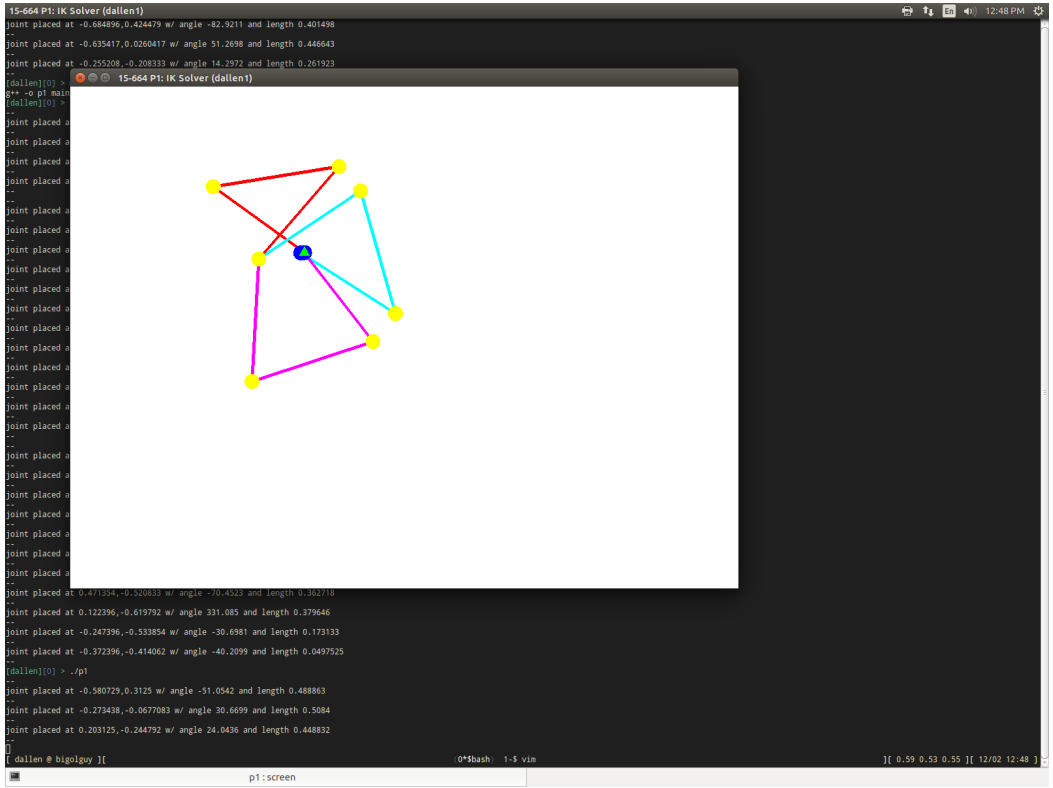
CCD Red, Jac. T. Cyan, Jac. P. Purple



CCD Red, Jac. T. Cyan, Jac. P. Purple



CCD Red, Jac. T. Cyan, Jac. P. Purple



Results (7 joints)

CCD	0.000021s
Jacobian Transpose	0.00037s
Jacobian Pseudoinverse	0.000476s