LSU EE 4720 **Homework 6** Solution **Due: 1 May 2020**

It's up to all of us: $r > 2\,\mathrm{m} \;\Rightarrow\; R_e < 1$ where r is the radius of the largest circle with you at the center and containing only people in your household, and R_e is the *effective reproduction number*, the number of people infected by an infectious person.

Problem 1: Solve 2017 Final Exam Problem 2, which asks for a PED of some code fragments on a 2-way superscalar MIPS implementation. The solution is available, but make every effort to solve it on your own. Use the posted solution only if you get stuck. Solving the 2017 problem will make the problem below easier.

Problem 2: Solve 2019 Final Exam Problem 1, **including the bonus question (part d)**, which asks for datapath and control logic for a 2-way superscalar implementation, some associated with a dependence leading to a `sw` instruction. Parts a and b ask for typical hardware. Part c is more interesting because the hardware is essentially avoiding a stall by skipping an instruction in a dependence chain. The dependence chain is `or` → `add` → `sw` and the skipped instruction is the `or`. Part d, the bonus question, asks whether this is worth it.
An Inkscape SVG version of the MIPS implementation from Problem 1 of the exam can be found at `https://www.ece.lsu.edu/ee4720/2019/fe-fuse.svg`.

See posted exam solution at `https://www.ece.lsu.edu/ee4720/2019/fe_sol.pdf`