

---

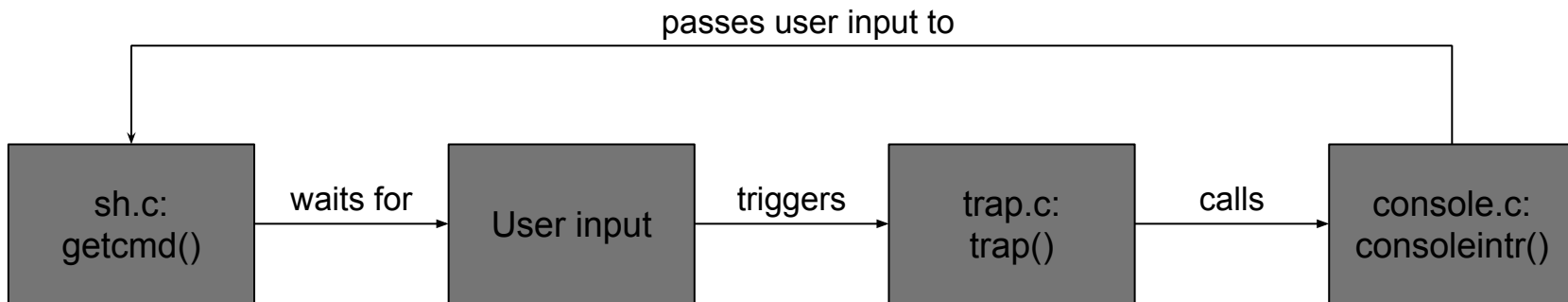
---

# XV6 Shell History

Arthur Wang

---

# Major Components



```
int
getcmd(char *buf, int nbuf)
{
    printf(2, "$ ");
    memset(buf, 0, nbuf);
    gets(buf, nbuf);
    if(buf[0] == 0) // EOF
        return -1;
    return 0;
}
```

```
void
trap(struct trapframe *tf)
{
```

```
    case T_IRQ0 + IRQ_COM1:
        uartintr();
        lapiceoi();
        break;
```

```
void
consoleintr(int (*getc)(void))
{
```

---

# Implementation

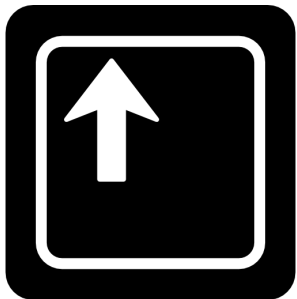
## 1. Interacting with the console

```
#define INPUT_BUF 128
struct {
    char buf[INPUT_BUF];
    uint r; // Read index
    uint w; // Write index
    uint e; // Edit index
} input;
```

```
case C('H'): case '\x7f': // Backspace
    if(input.e != input.w){
        input.e--;
        consputc(BACKSPACE);
    }
    break;
```

```
default:
    if(c != 0 && input.e - input.r < INPUT_BUF){
        c = (c == '\r') ? '\n' : c;
        input.buf[input.e++] = c;
        consputc(c);
        if(c == '\n' || c == C('D') || input.e == input.r + INPUT_BUF){
            input.w = input.e;
            wakeup(&input.r);
        }
    }
    break;
```

## 2. Detecting keystrokes



= esc + [ + A/B/C/D

```
[arthurw@snares-06] (1)$ sleep 10
^[[A
^[[B
^[[C
^[[D
```

---