

# CMSC 128

## Introduction to Software Engineering

### 2<sup>nd</sup> Semester AY 2016 – 2017

### 02 – History of Software Engineering



---

Reginald Neil C. Recario  
Institute of Computer Science  
University of the Philippines Los Baños



0

**CMSC 128**

# **Introduction to Software Engineering**

**Why CMSC 128?**



## CMSC 128 Introduction to SE

- History of Software Engineering
- References
- Credits

1

# History of Software Engineering

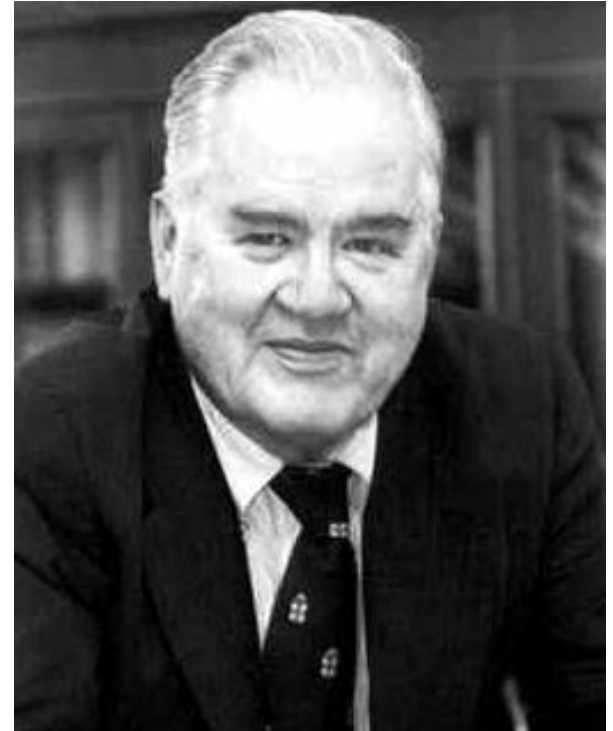


# History of Software Engineering

What software is...

- First coined by **John Tukey** in 1958.

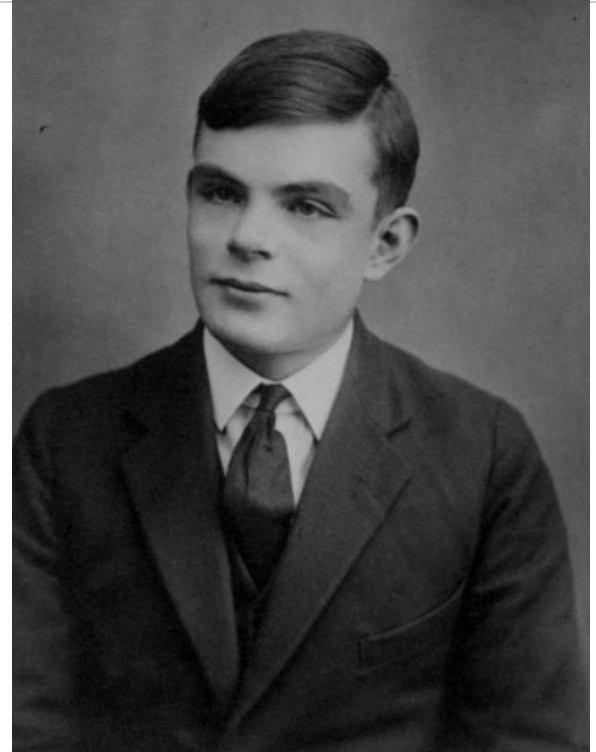
Source:  
[https://upload.wikimedia.org/wikipedia/en/e/e9/John\\_Tukey.jpg](https://upload.wikimedia.org/wikipedia/en/e/e9/John_Tukey.jpg)





## History of Software Engineering

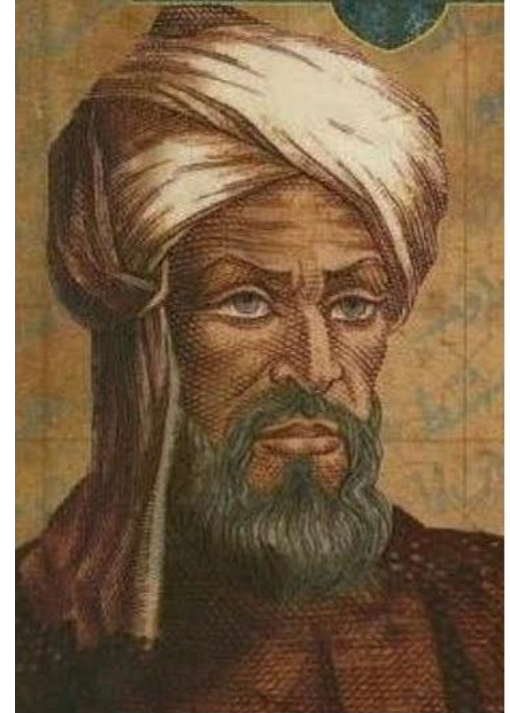
- Theoretical concept of a computer was first established by Alan Turing in the 1930's.





## History of Software Engineering

- The concept of algorithm was introduced by **Muhammad Al-Khawarezmi**, a 9th century mathematician.





## History of Software Engineering

- An algorithm became concrete when it was programmed by **Ada Lovelace**, the first computer programmer.

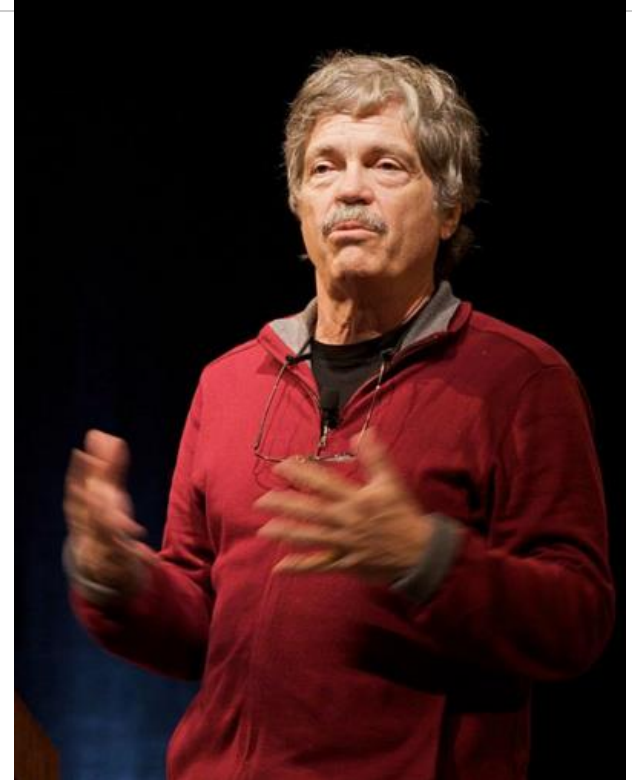






## History of Software Engineering

- ◎ **Alan Kay** is known for his pioneering work on window based graphical user interfaces. He is also known for coining the term object-oriented programming in 1966.





## History of Software Engineering

- **Ali Mili** contributed to the formalization of software fault tolerance, now a major concern for developing secure software systems.





## History of Software Engineering

- ◎ **Barry Boehm**  
contributed to the area  
of software engineering  
economics and  
software metrics.  
He has also introduced  
the spiral model for  
software development.



Source:

[https://en.wikipedia.org/wiki/Barry\\_Boehm#/media/File:O\\_lend%C3%A1rio\\_Barry\\_Boehm.jpg](https://en.wikipedia.org/wiki/Barry_Boehm#/media/File:O_lend%C3%A1rio_Barry_Boehm.jpg)



## History of Software Engineering

- ◎ **Bill Joy** contributed to the development of the Unix operating system and the Java programming language.

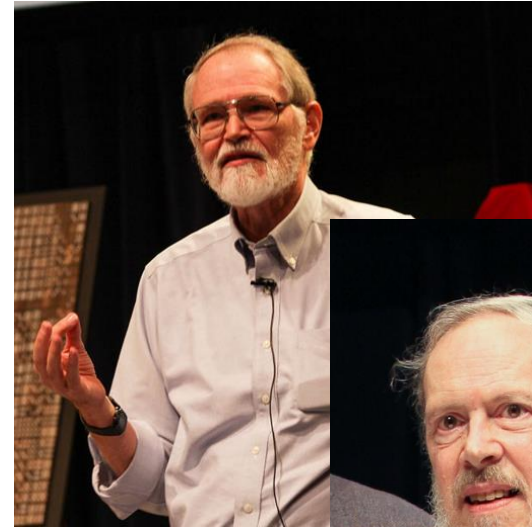


Source: [https://en.wikipedia.org/wiki/Bill\\_Joy#/media/File:Bill\\_joy.jpg](https://en.wikipedia.org/wiki/Bill_Joy#/media/File:Bill_joy.jpg)



## History of Software Engineering

- ◎ **Brian Kernighan and Dennis Ritchie** were instrumental in developing the Unix operating system and the C programming language.

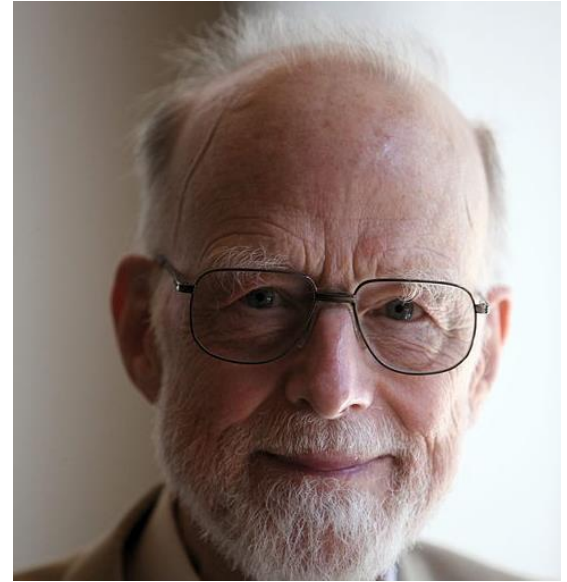


Source: [https://en.wikipedia.org/wiki/Brian\\_Kernighan#/media/File:Brian\\_Kernighan\\_in\\_2012\\_at\\_Bell\\_Labs\\_1.jpg](https://en.wikipedia.org/wiki/Brian_Kernighan#/media/File:Brian_Kernighan_in_2012_at_Bell_Labs_1.jpg)  
[https://upload.wikimedia.org/wikipedia/commons/2/23/Dennis\\_Ritchie\\_2011.jpg](https://upload.wikimedia.org/wikipedia/commons/2/23/Dennis_Ritchie_2011.jpg)



## History of Software Engineering

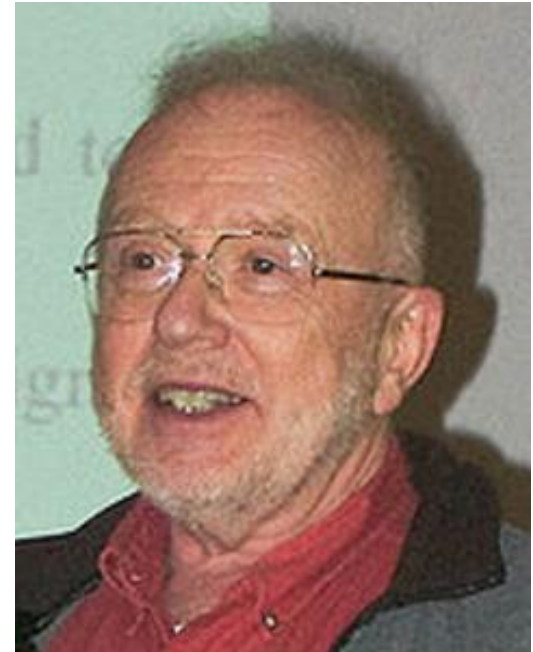
- **C.A.R. Hoare** introduced the concepts of assertions and program proof of correctness, designed and analyzed well-known algorithms, and developed communicating sequential processes, a formal language for the specification of concurrent processes.





## History of Software Engineering

- **David Parnas** introduced the concepts of information hiding, software interfaces and software modularity. He has also contributed to software engineering education and the ethical responsibilities of a software engineer.



Source: [https://en.wikipedia.org/wiki/David\\_Parnas#/media/File:David\\_Parnas.jpg](https://en.wikipedia.org/wiki/David_Parnas#/media/File:David_Parnas.jpg)





## History of Software Engineering

- **Donald Knuth** is known for the design of many well-known computer algorithms and the use of rigorous mathematical techniques for the formal analysis of the complexity of algorithms.

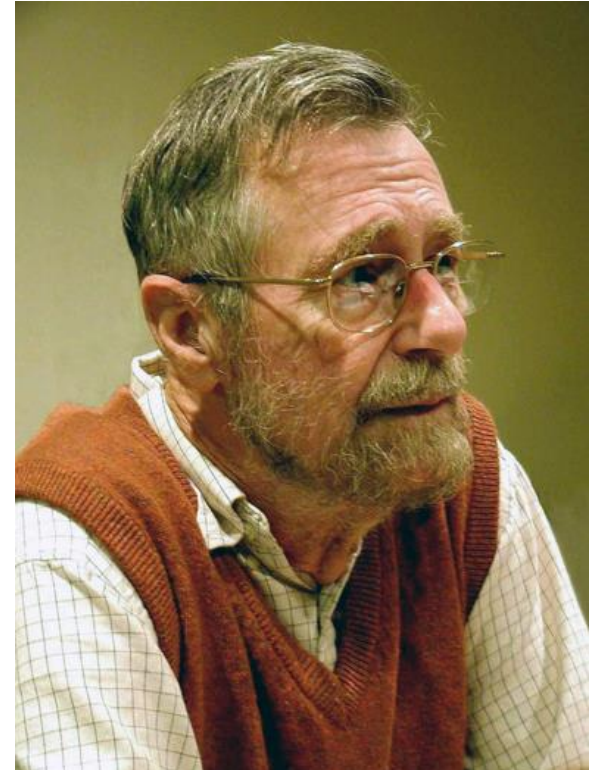






## History of Software Engineering

- **Edsger Dijkstra** introduced the concept of structured programming and carried out in-depth studies of the problems of concurrency and synchronization needed in complex distributed systems.



Source: [https://en.wikipedia.org/wiki/Edsger\\_W.\\_Dijkstra#/media/File:Edsger\\_Wybe\\_Dijkstra.jpg](https://en.wikipedia.org/wiki/Edsger_W._Dijkstra#/media/File:Edsger_Wybe_Dijkstra.jpg)



## History of Software Engineering

- Erich Gamma with Richard Helm, Ralph Johnson and John Vlissides introduced the concept of object oriented design patterns to facilitate software design reuse.

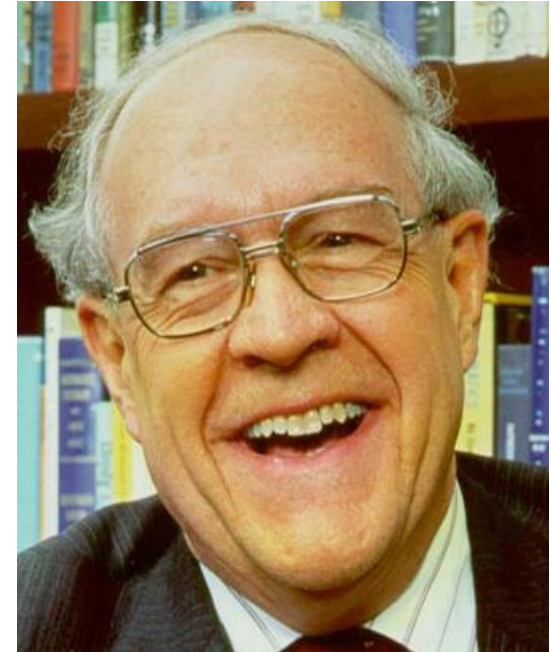


From left to right: Ralph Johnson, Richard Helm, Erich Gamma, and John Vlissides.  
(Photography courtesy of Addison-Wesley.)



## History of Software Engineering

- **Fred Brooks** contributed to the development of the OS/360 operating system software. He is also known for introducing the mythical man-month in software project management.





## History of Software Engineering

- **Friedrich Bauer** introduced the use of stacks for expression evaluation in programming language compilers, contributed to the development of the ALGOL and coined the term software engineering in the NATO conference held in Germany in 1968.



Source: [https://en.wikipedia.org/wiki/Friedrich\\_L.\\_Bauer#/media/File:FriedrichLudwigBauer.jpg](https://en.wikipedia.org/wiki/Friedrich_L._Bauer#/media/File:FriedrichLudwigBauer.jpg)



## History of Software Engineering

- ◎ **Grace Hopper**  
contributed extensively  
to the first compiler and  
the COBOL  
programming language  
in the 1959's.





## History of Software Engineering

- ◎ **Grady Booch** is known for his method for object oriented analysis and design and his co-development of the unified modeling language (UML).



Source: <http://modeling-languages.com/wp-content/uploads/2014/10/image-83472-full.jpg>





## History of Software Engineering

- **John Backus** is well known for the invention of FORTRAN, compiler optimization, and the Backus-Naur Form for the formal description of programming language syntax.





## History of Software Engineering

◎ **Michael Fagan**  
contributed  
extensively to the  
area of software  
inspection.



Source: <http://www.mfagan.com/images/fagan.jpg>





## History of Software Engineering

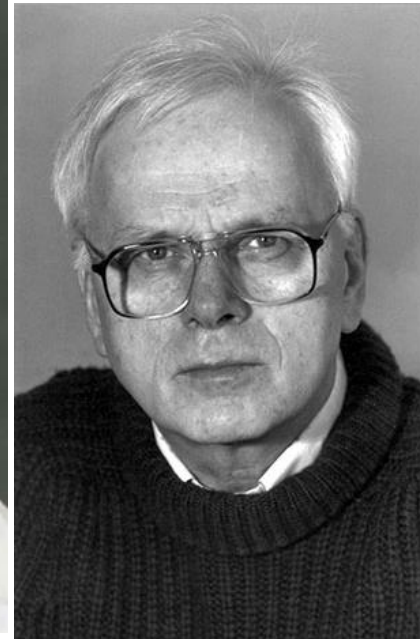
- ◎ **Niklaus Wirth** introduced the Pascal programming language and other languages, and contributed to the idea of decomposition and stepwise refinement.





## History of Software Engineering

- Ole-Johan Dahl and Kristen Nygaard introduced the Simula language which was the first object-oriented programming language.



Source: <http://www.mn.uio.no/ifi/english/about/ole-johan-dahl/ole-johan-dahl-turing.jpg>  
[http://heim.ifi.uio.no/~gisle/in\\_memoriam\\_kristen/images/kristen04w.jpg](http://heim.ifi.uio.no/~gisle/in_memoriam_kristen/images/kristen04w.jpg)



## History of Software Engineering

- ◎ **Peter Naur** is known for his contributions to the creation of the ALGOL programming language and the introduction of formal syntax description language.



Source: <https://upload.wikimedia.org/wikipedia/commons/5/55/Peternaur.JPG>



## History of Software Engineering

- ◎ Tom DeMarco and Edward Yourdon introduced the structured analysis and design approach for specifying and designing software systems.



Source:  
<http://www.systemsguild.com/images/TDM2007.jpg>  
[http://yourdon.com/edward\\_yourdon\\_1944\\_2016.jpg](http://yourdon.com/edward_yourdon_1944_2016.jpg)



## History of Software Engineering

- ◎ **Watts Humphrey** is known for his work on the capability maturity model developed by the software engineering institute and the personal software process.

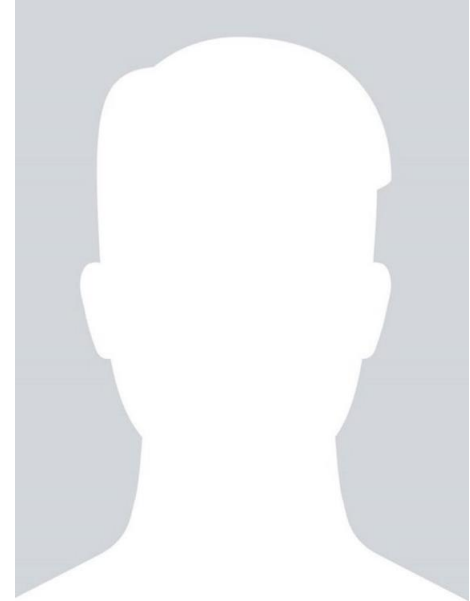


Source: <http://www.sdtimes.com/images/watts.jpg>



## History of Software Engineering

- **Winston Royce**  
contributed the well-known model for the management of large software systems which was later named the **Waterfall model**.



---

2

# References

---



## References

---

- Marsic, Ivan. Software Engineering. 2012.
- Pressman, Roger. Software Engineering: A Practitioner's Approach (7th ed). 2010.
- Saleh, Kassem. Software Engineering. 2009.
- Sommerville, Ian. Software Engineering (10th ed). 2015.
- Sommerville, Ian. Software Engineering (9th ed). 2011.
- And other Software Engineering books and auxiliary online references



---

3

## Credits

---



# Thanks!

*Any questions ?*

You can find me at

- @RegRecario
- rcrecario@up.edu.ph



## Credits

---

Special thanks to all the people who made and released these awesome resources for free:

● Presentation template by [SlidesCarnival](#)

● Photographs by [Unsplash](#)