

# Future of the Polygraph

Raymond Nelson  
August 2016

- In years past the polygraph was the only valid scientific method for instrumental detection of deception

# Alternative Methods

- Scientific alternatives to the polygraph are now commercially available
  - Objective
  - Convenient
  - Less personally invasive
- Scientific
  - Objective computerized statistical analysis
  - No pretense that it is perfect
  - No apologies that it is not perfect
  - Accuracy rates are reportedly similar to the polygraph

- For the first time in history the polygraph test and the polygraph profession will have to compete with another scientific technology
- Are we ready?

# Criticisms of the Polygraph

- Pseudoscience
- Antiquated
- Personally invasive beyond the scope of the required investigation
- Vulnerable to faking
- Subjective
  - Requires expertise
  - Experts do not agree
  - Lack of objective statistical analysis
- Many polygraph examiners do not understand science

# SWOT

- Strengths
- Weaknesses
- Opportunities
- Threats

# Strengths of the Polygraph

- Interview will always get a lot of useful information
- Professional infrastructure
- Already embedded

# Weaknesses

Many examiners are not familiar or comfortable with science

- Some are science-phobic

Perceptions of pseudoscience

Subjective

- Visual
- Examiners often disagree

Vulnerable to faking

Public hates it

Some scientists still criticize it

Target selection is often unscientific

- Based on personal values and belief without evidence

Lack of published research to show improved outcomes

- PCSOT
- Police screening
- Operational and information security

Not enough scientists in the polygraph profession



# Weaknesses

Examiners view the polygraph test result as useless

- Test result cannot be used without a confession
- Test result is not needed when there is a confession

Both policy makers and the public believe the polygraph is easy to defeat

Examiners have created unrealistic expectations for infallibility and perfection

- Neglecting to think probabilistically
- Contributes to magical thinking and frustration with reality

# Opportunities

- Increase scientific knowledge and competency of examiner
- Use of objective statistical and computerized analysis for results
  - Statistical learning theory
  - Machine learning / AI
- Computerized analysis for faking
  - Statistical learning theory
  - Machine learning / AI
- Increased use of automation for boring subjective tasks
- Develop and emphasize interviewing and information along with a modern objective and scientific polygraph

# Threats

- Some examiners enjoy the role of subjective expert
  - Pretend objectivity
  - Lack of reproducibility of subjective non-analytic conclusions
- Over-reliance on subjective solutions for faking
  - Need objective scientific solutions for faking
    - Activity sensors are interpreted subjectively
- Lack of scientific competence among polygraph examiners
- Over-reliance are arcane false hypothesis
  - Pseudoscience
  - Cargo-cult science

# Threats

- Resistance to science
- Some polygraph examiners are are afraid of the test result
  - Without a confession the test result is viewed as useless by some examiners
- Misunderstanding of errors
  - Pretend perfection
  - Blame examiner or examinee for errors
- Reliance on manipulation
- Reliance on circus tricks
- Reliance on mis-information (false or inaccurate explanations)
- Not enough research / not enough researchers
- Too many examiners still practice old-school polygraph using ideas that are not supported by scientific evidence