





FUTURE RECIPES

未来食谱 | Xiaowei R. Wang

RED-BRAISED PIG TAILS

Pig tail is a recent delicacy in China. Its texture is a complex journey through a range of sensations: satisfyingly chewy, melt-in-your-mouth fatty, and surpris-ingly crunchy, a pig tail is a condensation of all our favorite pork parts. There are many ways to prepare this cut of pork, but we find that red-braised is the most delicious, highlighting the tenderness of the fatty parts while also softening some of the tougher portions, like the tail's tip.

Tails were once considered common, but under the National Five Year Plan To Improve Pork in 2019, all tails were eliminated from Chinese bred pork. The National Five Year Plan To Improve Pork arose from pork industry consolidation and the introduction of advanced technologies in industrial pork farming, like Al and computer vision. A rising middle class in China demanded more cheap pork as a sign of prosperity. The government understood that food security and meeting food demands would lead to political stability. As a result, they consoli– dated China's small pork producers and encouraged industrialized farming under the National Five Year Plan To Improve Pork, which would leverage blockchain (to track provenance), genetic engineering, Al and computer vision to increase pork production while cutting costs.

Labor intensive, small–scale pork farming was restricted to heritage breed pigs and a maximum of 50 animals, as human farmers had restrictions on the level of efficiency in which they could watch over their pigs. Heritage breeds also caused issues with the rest of the production line: a diversity of breeds meant differ– ently sized pigs and different ratios of fat to lean meat which resulted in non– standardized slaughtering, pork quality grading and pricing. As a result, China's pork industry followed in America's footsteps, where heritage breeds were for the large part eliminated and replaced with three major breeds, Yorkshire, Duroc and Landrace pigs.

As the pigs became standardized, computer vision models became more accurate, since cameras could quickly and easily identify registration marks branded on the pig's body, without incorporating new training data about obscure heritage breeds. The African Swine Fever scare in 2019 underscored the urgency of the National Five Year Plan To Improve Pork, to eliminate all small pork producers and focus on making a modern, hygienic pork industry.

Given pigs' susceptibility to disease, sources of contamination were decreased and removed entirely. One step along the process occurs during transport, where stressed pigs will bite each other's tails off while in tight quarters. In 2020, He Zuyong's pork lab at Sun Yatsen University in Guangdong pioneered a novel



technique for cloning gene-edited pigs. Part of the lab's work included gene editing pigs to take out their tails, preventing injury during transport, as well as optimizing and standardizing the pig for computer vision, in case the tail might obscure any registration marks.

There remain a few heritage pig producers in China, however. As of 2023, there are a handful of breeders in Guizhou as well as Guangdong. Such pigs are highly coveted, fetching up to 100,000 RMB. Each part of the pig is used, given the status of such pigs. The tail especially is prized, as a whole, unbitten tail is proof of heritage status. For special celebrations, this recipe for red-braised pig tail is sure to impress any banquet guest.



RED-BRAISED PIG TAILS (RECIPE)

INGREDIENTS: ¹/₂-inch stick of licorice 1 tbsp of ginger, minced finely 2 cloves of garlic, minced finely ¹/₂ stick of Chinese cinnamon (cassia bark) 1 tbsp green Szechuan peppercorns 3 stars of anise 1 tbsp of sugar 1 bay leaf 1 cup of soy sauce Oil 1 pig tail 2 eggs

GARNISH: Cilantro Scallions

1. First, make the eggs (for ludan, or soy eggs). Boil for 7 minutes and 30 seconds. Remove from heat and immediately place in a cooling ice bath. Peel, set aside.

2. Fill a large wok with water and bring to a boil. Place the pig tail in the boiling water and poach for one minute. Remove the scum that floats at the top of the water. Remove pig tail and set aside.

3. Empty the water, making sure to dry the wok. In the dry wok, pour some oil. Place the tail into the wok, along with $\frac{1}{2}$ a tablespoon of sugar. Turn the heat to medium to caramelize the tail on both sides. Remove the tail once the exterior has browned.

4. In the wok, keep the oil at medium. Add the minced garlic and ginger. Stir for a few minutes, until ginger and garlic become fragrant.

5. Place the oil, ginger and garlic into a clay pot. Add the pig tail, the two peeled eggs and the rest of the spices: cinnamon, licorice, Szechuan peppercorn, anise and bayleaf. Add the other $\frac{1}{2}$ tablespoon of sugar and soy sauce. Place clay pot on stove and cover.

6. Simmer at medium until slightly bubbling, then turn heat to a low simmer for up to 2 hours. The longer you simmer, the more flavorful the meat and eggs will become.

7. Remove tail and eggs from heat, plate and garnish with scallions and cilantro.

Place noodle strands flat and measure length of each. Make note of length



Take noodle A and link it to noodle B

Take measurement of noodle A and multiply it by noodle B to get z. Then find x where z + x = 0

Multiply x by the next noodle, C to get a new product, y. Then find x where y + x = 0

Repeat until all strands have been incorporated.

For example:



BLOCKCHAIN NOODLES

China is home to some of the biggest cryptocurrency and blockchain firms. Companies like Binance and Bitmain were founded in China and continue to operate within the country so long as regulation allows.

Starting in the late 2010s, the government has encouraged the growth of blockchain within China. As a form of "immutable storage," blockchain allows for a decentralized, tamper–resistant ledger. Due to its tamper–resistant nature, records cannot be falsified, which is ideal for a range of industries from food safety to payment records.

Blockchain's status as a cutting–edge technology in the late 2010s also made it a marketing buzzword in addition to utilitarian technology. Food especially became a way to make money off the blockchain. Red wine from Great Wall, tracked on the blockchain to prove authenticity and provenance, fetched hundreds of RMB. Fish, pork and chicken were all tracked on the blockchain as part of poverty alle–viation projects in rural China, designed to increase the profit margins of small farmers. One project, GoGoChicken, stored the information of each free–range chicken on a private blockchain, with each chicken's weight, date slaughtered and number of steps taken in the pasture on the blockchain. These chickens could be purchased by wealthy Shanghaiites for the steep price of 200 RMB per chicken.

Such blockchain food projects are still targeted towards the wealthy 1% of people who can afford such food, with only a small amount of extra earnings trickling down towards impoverished, rural farmers. Blockchain noodles are a *shanzhai*-style people's blockchain, first formulated by a farmer in Guizhou, whose wife owned a noodle stand. The wife kept hearing the word "blockchain" from her WeChat feed, and decided to investigate for herself. Through the village's poverty alleviation fund, she set up an Ethereum mining rig for herself, using cheap wind power and a used GPU that her daughter brought back from the city.

As one of the first Ethereum miners in town, she began advertising her blockchain noodles: you'll like the taste of them or your ETH back! Each noodle is carefully measured and then strung onto another noodle, link by link. A set of mathematical computations are done to all the links in a process similar to the blockchain hashing system. At the end, a single number, the Noodle Number, results from the noodle chain and is put on the noodle bowl. When the buyer pays for the noodles, the Noodle Number is included as a data payload in the transaction.

The farmer's wife profited heavily off her blockchain noodles and received massive amounts of media attention, including a visit from Changpeng Zhao, CEO of Binance who declared she had the tastiest noodles in China. In 2025, after opening a successful blockchain noodle chain, she open sourced her recipe for blockchain noodles.



INGREDIENTS: White flour Semolina flour Water Salt Vegetable oil Rice flour

FOR THE SAUCE: Chili oil (to make your own, see below recipe) Soy sauce Black vinegar Cilantro Green onion

TO MAKE THE NOODLES:

1. Combine white flour, semolina flour, salt and water in suitable proportions. A rule of thumb is half semolina and half white flour—the semolina has a higher gluten content and will add stretchiness, while the white flour adds structural strength to the noodles. For approximately 4 full–sized servings of noodles, use $1\frac{1}{2}$ cups semolina and $1\frac{1}{2}$ cups white flour. Add 1 teaspoon of salt for every 3 cups of flour. Combine the dry ingredients in a large bowl. Slowly add warm water to the dry ingredients until it forms a wet dough. The dough should not be dry, but will not stick to the bowl when moved.

2. Knead dough for 8 minutes. Let rest for 15 minutes, covered, to prevent the dough from drying out.

3. Divide dough into small 1 inch balls, about 50 grams each. Roll out each ball lightly so it forms a small oval shape. Don't make this oval shape too thin—it should still be about $\frac{1}{4}$ inch thick.

4. Oil the top and bottom of the oval shaped dough and repeat the process of rolling and oiling for each small ball. Set aside, cover. Let the oval shaped dough pieces rest for up to 1 hour.

5. After 1 hour, take one of the oval shaped pieces and roll out thinly on a floured surface. Dust both sides with rice flour. Fold the thin dough in the center, and slice into noodle sized strips (about $\frac{1}{4}$ inch wide). Dust with more rice flour and stretch the noodles slightly before setting aside on a sheet pan. Link each noodle together, forming a chain. Repeat this process for each of the oval shaped dough pieces.

6. For each noodle chain, note the length of each strand. Follow the Noodle Number diagram to get the Noodle Number. Note this Noodle Number down to put on the bowl.



7. Noodles can be stored for three days in the fridge. When cooking, boil water and place noodles into the hot water. Noodles only take a few minutes to cook in boiling water—be careful not to overcook.

TO MAKE THE CHILI OIL:

1. In a small pan, simmer a cup of oil with star anise, cassia bark and a small piece of ginger. Simmer for up to 2 hours to infuse the oil.

2. In a separate, stainless steel or heat-proof bowl, place chili flakes (use a Szechuan blend of chili flakes, such as Facing Heaven chilis). After the oil has been infused, turn the heat up high to get the oil very hot. Pour the hot oil over the bowl of chili flakes to crisp the chili flakes slightly. The oil might spatter, so be careful. If the oil bubbles up on the sides, this means the temperature was correct.

3. Let the oil cool.

4. To make the noodle sauce, combine soy sauce, vinegar and chili oil to taste. Top with green onions and cilantro.

5. Make sure to dress the noodles immediately before serving, not too far in advance or noodles will become soggy.



A.I. PORRIDGE

In both the 1980s and 2020s, researchers suffered an "Al winter," where funding and public interest in artificial intelligence was low. While companies and CEOs in the West had promised self-driving cars and fully sentient machines by 2020, neural networks used in Al were unable to deliver, with the specificity of training data limiting what an Al model could be used for. Neural networks were only capable of doing single-use tasks such as identifying people in photos, but were unable to scale to other purposes. Despite the attempt to develop "artificial general intelligence," political and popular support for such endeavors was low, decreasing funding from private and public sectors significantly.

In the midst of this AI winter, a group of Chinese scientists and researchers at the joint Tsinghua–Alibaba AI lab took up the task of generalizing AI models, taking their cue from Chinese medicine. In Western medicine, the most important organ is the brain and all life stems from the brain and mental thinking. In Chinese medicine, there are eleven vital organs and this list does not include the brain. Within these eleven vital organs is the subcategory of five zang, or key organs (heart, liver, lungs, spleen, kidney). Brain functions are scattered throughout the body, and brain function itself is considered a holistic function rather than isolated to a single organ. Emotions such as anger, deep thinking, melancholy and fear are governed by the liver, spleen, lungs and kidney. The dynamics of the body in Chinese medicine have been compared to systems in chaos theory, or hybrid dynamic systems (see Sakatani, Kaoru. "Concept of Mind and Brain in Traditional Chinese Medicine." *Data Science Journal*, vol. 6, 2007, doi:10.2481/dsj.6.s220.), where the function of each organ is more important than the structure.

Researchers managed to create a pre-trained neural network with electrical inputs and outputs from a combination of artificial and human organs. This hybrid machine was able to perform broader tasks without further training data, but was still not fully sentient. Scientists believe further development is needed into the concepts of creativity and language to fully understand where other parts of the body's creative and language functions reside. Yet the ability of the machine to extend its thinking was the first breakthrough in a long, icy Al winter.

The system did not have access to typical conduits for qi (the defining force in Chinese medicine), such as hair, skin or muscle, to send to the machine-meat hybrid. In order to nourish this system of organs and neural nets, it had to be constantly fed tonifying food: foods to nourish the vital organs in the system.

This porridge was developed by researchers to nourish and tonify the system, but can be used as a nourishing and tonifying system for the human body as well. It's quick and easy to make. You can use a pressure cooker, an Instant Pot or a rice cooker with a porridge setting.



A.I. PORRIDGE (RECIPE)

INGREDIENTS: ¹/₂ cup quinoa ¹/₂ cup amaranth Roasted pumpkin seeds 1 tbsp fat of your choice (butter, oil, pork lard) Maple syrup for sweetening Sticky rice (glutinous rice) Water

1. Make the porridge by combining the glutinous rice with water in a ratio of 1:5 (for example, 1 cup rice to 5 cups water). If using the stovetop, set heat on medium until mixture boils, then turn to low. Otherwise, use the porridge setting on your rice cooker.

2. While the porridge is cooking, make the popped quinoa and amaranth for the porridge. This process is similar to making popcorn. However, do not use oil—use a dry pot. On the stovetop, heat a large, deep pot on high for a few minutes. The pot should be deep since the amaranth and quinoa will jump during popping, and this will prevent amaranth from popping out of the pan. After a few minutes, place a few grains of amaranth in the pot to test if the base is hot enough. If they pop immediately, the pot is at the correct temperature. Discard the test amaranth. Add enough amaranth to cover the bottom of the pot, turn heat to low and allow the amaranth to pop, while shaking the pot so the grains move around. Not all grains will pop, so once the popping starts to slow, remove from heat. Pour the popped amaranth into a sieve to sift out the popped grains and discard the unpopped ones.

3. Follow the above process for quinoa, taking special care to shake the pot while the quinoa grains are popping so that they do not burn. Combine the popped quinoa and amaranth and set aside.

4. Once the rice in the porridge has become soft enough for your liking, place into a bowl. Mix a teaspoon of quinoa and amaranth mixture with one cup of porridge. Add the fat (a pat of butter), and top with maple syrup and pumpkin seeds.